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PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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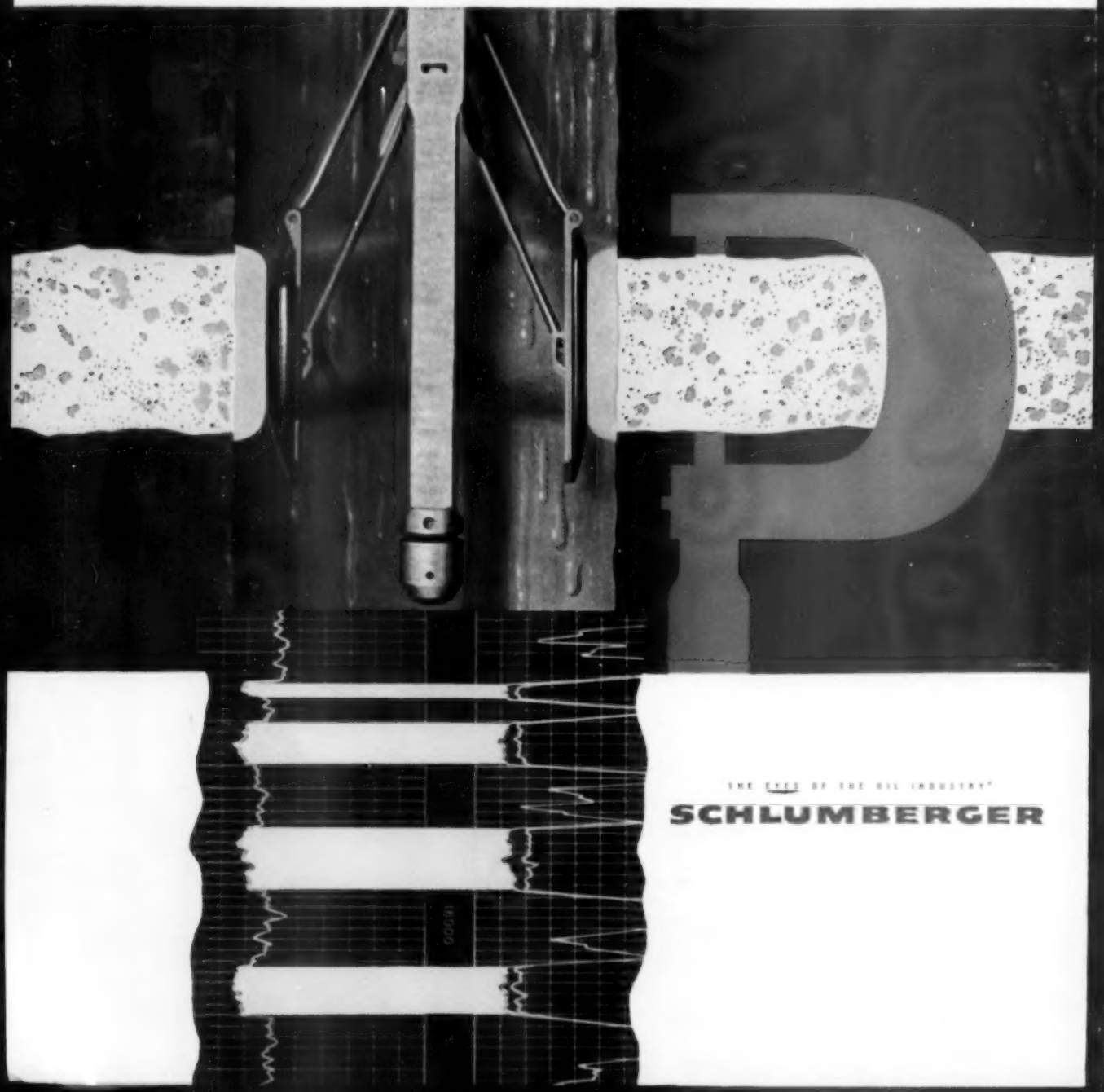

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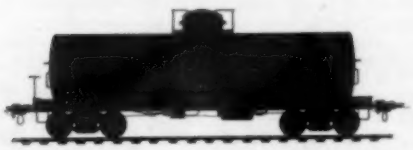

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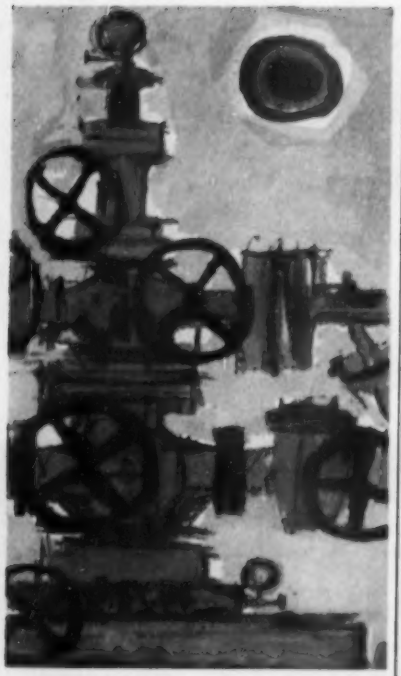

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Views That Make News

Dear Sir:

Your editorial, "Marketers Are Oil Men Too," [PW—Sep.2'60,p44] is of great interest to me. Providing factual information to the industry's dealers on those subjects which seem to be the greatest issues will not be easy, and of necessity will be a rather long-range program. However, as you undoubtedly know, many companies in the industry have taken unusual steps in recent years to bridge the gap between industry management and dealers to provide a forum for the issues and to provide factual information. This, however, is only a start.

Your editorial prompts me to request our people to make better use of our "Richfield Eagle," a publication for Richfield dealers, by providing more frequently factual information on the problems that are of interest to them.

I am sure that your editorial will serve to act as a similar stimulus to many other companies.

W. G. KING, JR.
Vice-president
Richfield Oil Corp.

Dear Sir:

I would like to comment on your editorial, "Marketers Are Oil Men Too."

First, I think the title "Dealers Are Oil Men Too" would have been a more satisfactory headline. But, let me get to the point. The editorial makes the excellent point that our industry's public relations are very dependent on the attitude of the service station dealers and, I am very much pleased that your magazine realizes how important the gasoline dealer is to all of us.

But in the last paragraph, you say, "But somebody had better figure out what's wrong and do something about it." I can't let this statement go unchallenged.

The American Petroleum Institute, which has always guarded the reputation of this industry, has done something about it. Seven years ago, we established a fundamental committee within the A.P.I. Marketing Division called the Service Station Advisory Committee. Since then, dealers have been welcomed into this wonderful public forum and, in the meetings over the years, representative dealers have become active members of our general committee.

We provided an opportunity for gasoline dealers to sit face-to-face with the marketing vice-presidents of the great marketing companies in this country. Over the years their complaints have been heard, and much has been done to improve our market structure and dealer relationships as a result of these free discussions. Hundreds of successful dealers across this country will testify to this.

The objective of the National Congress of Petroleum Retailers is to constantly demand additional benefits, and many of us regret that their presentation often takes on a bitter and damaging tone. However, we must remember that for the last ten years this has been a terribly competitive business, with insufficient profit obtainable from marketing. This, naturally, makes us all realize that the dealer segment is suffering because they are small businessmen at the competitive end of the line. And, therefore, it is easy to understand the dealer's impatience.

But I, for one, must stand up and say that a lot of us know what is wrong, and the API Marketing Committee is doing something about it.

DWIGHT T. COLLEY
Vice-president
Atlantic Refining Co.

"In November, we will be electing a new Congress. Every candidate who is running for the U.S. Senate or House should be asked to state his position on the present level of the federal gasoline tax. By asking the candidates to go on record at a time when they are seeking your support, you can help assure the expiration of the latest federal tax increase. You will also be counteracting the proposals that will be made to keep the tax at the 'temporary' level of four cents, or even to increase the federal tax still further.

"If this fight against high gasoline taxes is lost, the day may come when gasoline in the United States is truly a luxury, as it has long been in many other countries."

—FRED W. BARTLETT
Chairman
Socony Mobil Oil Co.

PETROLEUM WEEK *will publish reader comments each week. Address letters to LeRoy Menzing, Editor,* PETROLEUM WEEK, *330 W. 42nd St., New York 36, N. Y.*

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INSIDE Slant

THE NEED TO READ MORE

Another of the thoughts to emerge from the recent tour of Russia by a group of American oil men is the possibility that we are overlooking a bet by not reading more Russian technical papers.

Ira Cram, senior vice-president, Continental Oil Co., concedes frankly that he would have been better prepared for the trip had he "boned up" in advance on some of the literature that is available.

He said there is a vast amount of published information on Soviet petroleum developments which is or can be made available to the U.S. oil man.

Representatives of the Soviet petroleum entities gain their information about industry developments outside Russia almost entirely from published papers and trade publications.

He found these men surprisingly well-informed, for the most part.

Whether the U.S. industry has a great deal to gain from reading the Russian counterparts, Cram readily said, is uncertain.

But, he added, there is at least a possibility that we are leaving unexploited a fund of petroleum experience.

However, careful evaluation is necessary, as you have to discount quite a lot of what the Russians claim.

LeRoy Menzing
Editor

Good Wells Make Good News

Recent Profit-Building Treatments with Fracturing and Abrasijet

September 30, 1960

The use of Abrasijet* — Dowell's abrasive jetting service — before fracturing often improves results of the treatment. Sometimes, it may even eliminate the need for fracturing. Here are four recent treatments in which Abrasijet helped operators improve profits.

- **Jack County, North Texas** (Three Old Oil Wells) These wells had been completed open hole in an 11-foot section of the Buttram sand at about 2600 feet. Previous fracture treatments had broken into water. Dowell engineers cut circular notches in the oil pay with Abrasijet to induce horizontal fractures. Each well was then fractured using 1000 gallons refined oil and 1000 pounds 20-40 mesh sand. Production from the three wells was increased 90 bopd with no water.

- **Kern County, California** (New Oil Well) This well was completed in the Vedder sand between 11,884 and 11,980 feet. Standard method of completion in this field had been to run a drill stem test, then sidetrack and recomplete with oil-base mud at a cost of $50,000 to $65,000. Dowell recommended Abrasijet and Waterfrac instead of sidetracking. Four circular notches were cut using Abrasijet. Waterfrac, using 30,000 pounds gelled water and 3500 pounds 8-12 mesh walnut shells (instead of sand), followed each notching. Production after treatment was 300 bopd instead of 100 bopd normally expected after conventional completion. Cost saving was over $10,000.

- **Eddy County, New Mexico** (New Oil Well) This well was to be completed into the very tight Premier sand. Operator needed a completion that would initiate a fracture and lower the breakdown pressure. Dowell used Abrasijet to cut slots at four levels between 3200 and 3225 feet. Lease oil, carrying one pound sand per gallon, was used to jet each level for thirty minutes. Well was then fractured using 12,000 gallons refined oil and 45,000 pounds sand. Treatment was down 3" EUE tubing, 10 bpm at 5000 psi. Well tested 364 bopd after treatment.

- **Burke County, North Dakota** (New Oil Well) This slim-hole completion was into the Madison lime at about 6100 feet. Operator wanted to use Abrasijet to cut a single notch to induce horizontal fracturing and avoid breaking into water. He did not want to cut the string completely, however, because a bottom-hole pump was scheduled. A single 180-degree notch was cut. After swab testing, the well came in flowing without further treatment. Most other wells in the area required fracturing and pumping.

The chances are good that your Dowell engineer can tailor treatments for your wells to improve production and reduce costs. Dowell services and products are offered from more than 150 offices and stations in the United States, Canada, Venezuela, Argentina, and Germany. Dowell, Tulsa 1, Oklahoma.

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60-Second Summary / WHAT'S HAPPENING IN OIL

September 30, 1960

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More operators would use the slimhole technique if equipment were specifically tailored for this method. That's the finding of an American Assn. of Oilwell Drilling Contractors committee. . . . p. 12

•

Early season demand for heating oils has strengthened distillate. Despite high runs all summer, distillate inventories are in relatively good position. . . . p. 13

•

The industry's most concentrated effort to focus public attention on gasoline taxes starts this weekend in 42 states. The specific appeal is against possible extension of the temporary 1¢ federal tax beyond next June 30, its expiration date. . . . p. 9

•

The pressure to lower Venezuelan crude postings in line with the recent cuts in Middle East prices is now much less. The reason is that Venezuela has assured oil companies it will accept their actual sales realizations for tax purposes, rather than insist on posted prices. Excessive discounts will still be barred. . . . p. 14

•

Drilling contractors were told this week that they must strive for greater efficiency and sell their services harder. These were listed as the primary means toward a successful future in the highly competitive drilling business. . . . p. 18

•

Molecular sieves are becoming increasingly popular for sweetening LPG. The sieves do not act by molecular screening in this case, however, but by selective adsorption. . . . p. 40

•

One reason Indiana Standard dropped its Thailand refinery bid was government insistence that it also explore for oil. The company had proposed building a 25,000 b/d refinery. . . . p. 34

•

Insulation, marine borer protection, and cable armor are the three key factors in using submarine cables offshore. That's the opinion of Creole Petroleum Corp., based on 24 years' experience in Lake Maracaibo. . . . p. 20

•

Aromatic hydrocarbons are finding a growing demand as raw materials for an increasing number of chemicals. Benzene, in partcular, is benefiting from new techniques for its conversion into petrochemical intermediates. . . . p. 38

•

Dealers are experimenting with a novel sideline: selling life insurance. Mobil Oil Co. dealers are trying the plan at some stations in the Dallas-Ft. Worth area. . . . p. 44

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

September 30, 1960

The Federal Power Commission ruled this week that producers' gas prices will be regulated on an area basis. It thus made official the manner in which the commission has handled producers' rates for some time.

The new policy, which came in the FPC decision in the landmark Phillips case, throws out the cost-of-service approach—a move which surprised most close observers. The results would be "ridiculous" if costs were the sole basis of regulation, the commission said, adding that rigid adherence to costs—the recommendation of Examiner Joseph Zwerdling in the Phillips case—would price gas "completely out of the market." The commissioners ruling on area pricing—Jerome K. Kuykendall, Frederick Stueck, and Arthur Kline—observed that gas has been "substantially underpriced."

FPC terminated the Phillips case—which, in effect, ratifies the prices being received by the company. It did weigh Phillips' costs, but only because there was little other evidence on the record.

The commission set up separate price guides covering new and old contracts for nearly all producing areas. The only major gas area excepted is Southern Louisiana, which must await further hearings on initial prices under the Supreme Court mandate in the CATC case. The guides (with the exception of higher prices in West Virginia) range from 14¢ to 18¢ per Mcf. for initial rates and from 11¢ to 14¢ per Mcf. for escalated prices in old contracts. These ceilings are generally the same as published by Petroleum Week last January (PW—Jan.29'60,p11).

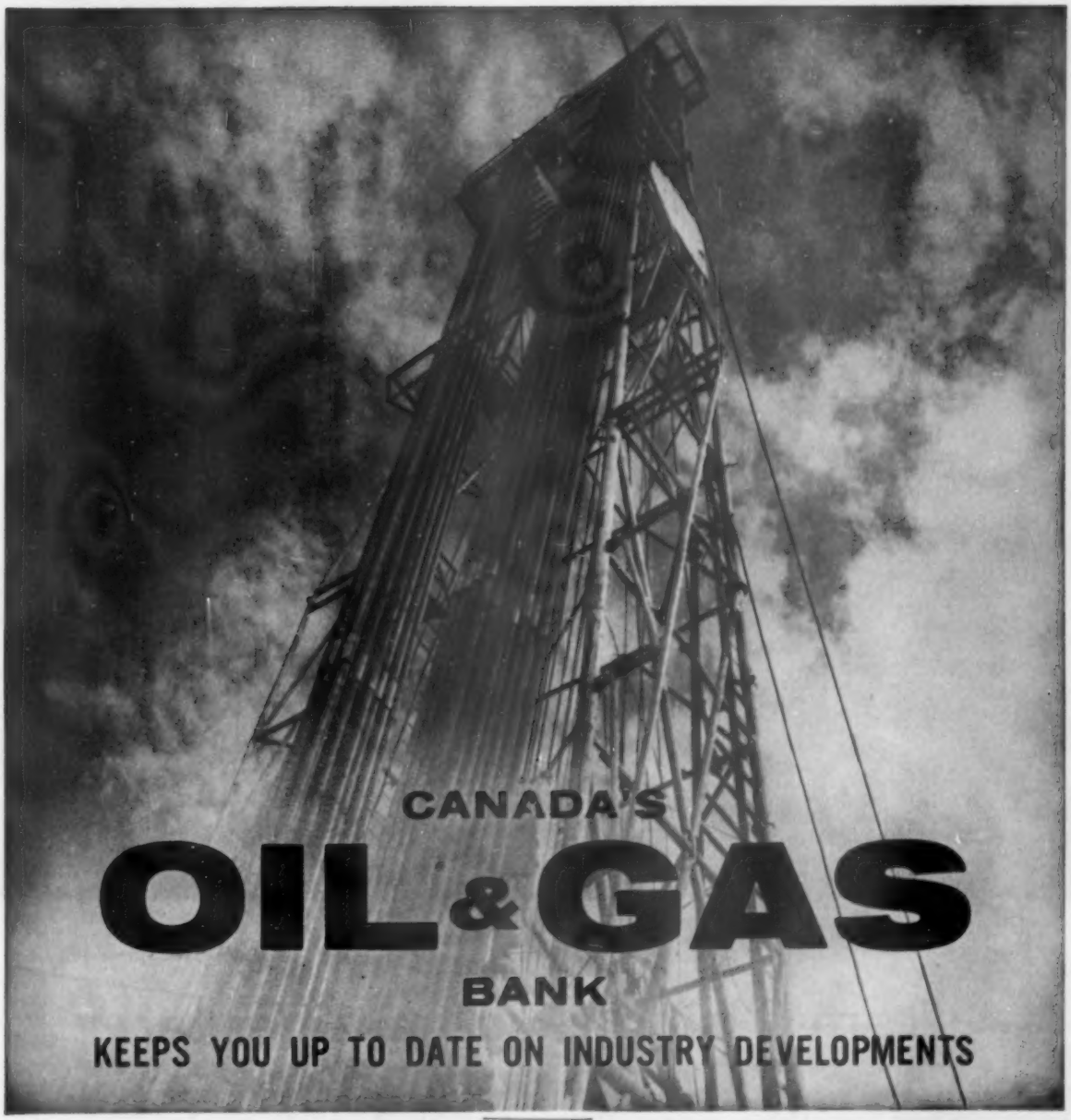
Producers generally say the new policy is "encouraging." But the early reactions contain two important fears: (1) that the price guides set may amount to a freeze, and (2) that the turn to area pricing may kill the chances for a gas bill.

•

The market for domestic crude is now the strongest since the last general price increase, in January, 1957. The supply of crude is particularly tight in Texas. Major purchasers report that generally there are no "good" grades of crude looking for a market in any area. Some buyers believe that the firmness in the market is temporary, due to the long period of tight allowables in some states, high refinery runs, and the scramble by some companies, using the last-in-first-out inventory evaluation, to avoid tax penalties that could result from too little crude in storage at year-end.

Substantial strength in the market is reflected in the moves by some majors to make new lease connections and to sign long-term contracts. One recent contract reportedly is for five years. Also, effective Oct. 1, Derby Refining Co. is advancing its postings for southwest Kansas and Oklahoma Panhandle crudes 7¢ a bbl. to a top of $2.77 a bbl. for 40- to 45-gravity. In some multiprice areas, notably North Texas and the East Texas field, there is some talk of possible shifts in connections.

West Texas intermediate and sour, Ellenburger, low-cold test, Four Corners, and asphaltic crudes lead the "tightest" list. Condensate and Gulf Coast light oil are also in strong demand in Texas. The Oklahoma market is gaining strength. The October allowable there was set at 506,000 b/d, up 18,000 b/d over September.



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The Special Bulletins issued by this department are highly valued both by those already established in the industry and those planning to enter it. A list of these Bulletins, dealing with regulations, tariffs, financing, statistics, and related matters is available on request. Write The Royal Bank of Canada, Oil and Gas Department, 409 Eighth Ave. W., Calgary, Alta.

We do not provide information on oil securities.

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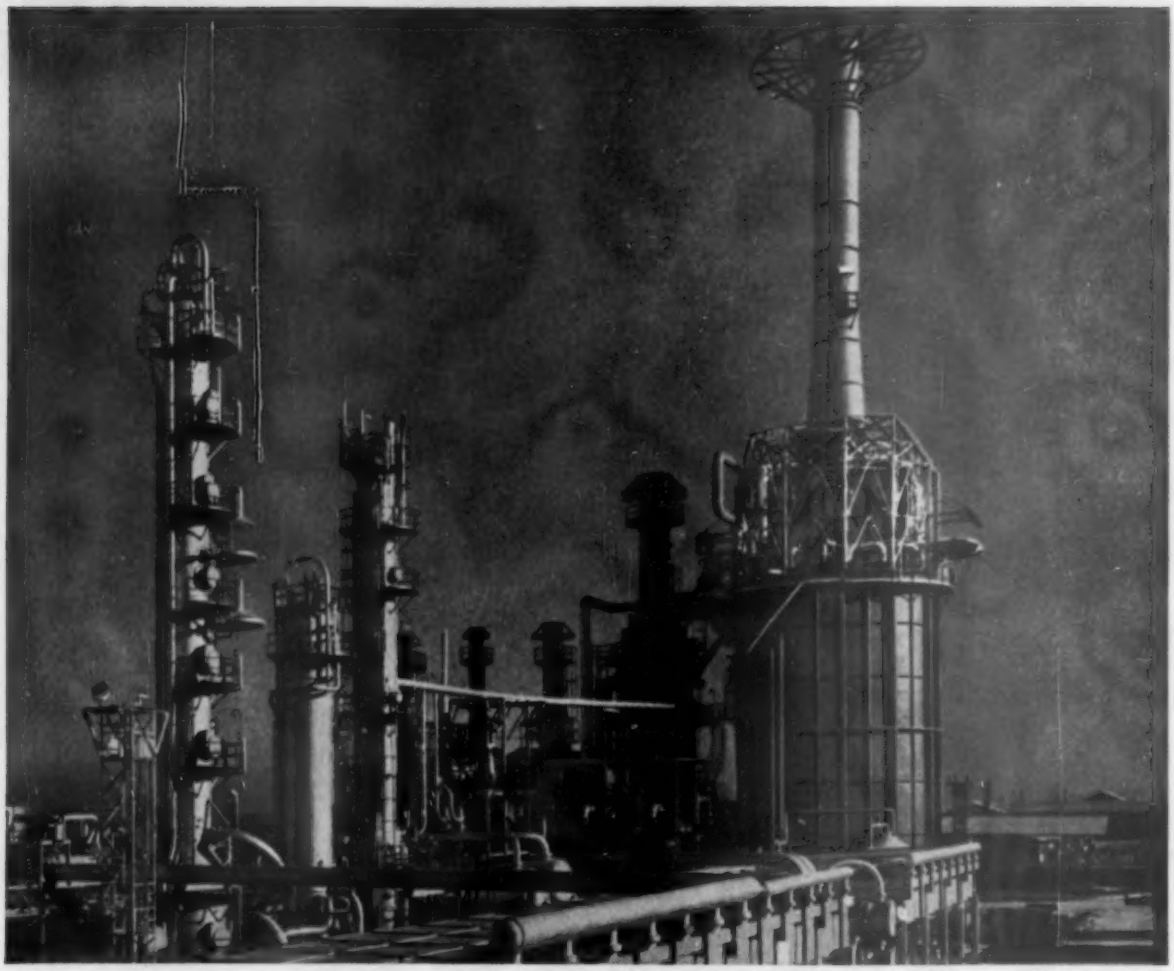

176 million Btu/hr from a single vertical heater

The Foster Wheeler direct-fired heater above is the largest cylindrical vertical heater in the world. It was designed and built for the Powerformer section of a major French refinery.

This unusual unit features a 41-foot diameter fire box and a separate horizontal convection section. It has an overall height of 200 feet and is designed for high thermal efficiency with ease of operation. Foster Wheeler coordinated U. S. engineering and foreign procurement to assure minimum cost.

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Dealers Launch Tax Protest Drive

A massive protest campaign against extension of the federal government's temporary 1¢-per-gal. tax on gasoline opens tomorrow in 42 states.

The starting date is the first anniversary of the effective date of the penny-per-gallon boost that Congress approved last year to supplement federal road-building funds.

In most states, the campaign will continue through next Friday, so that the official target dates of the drive are Oct. 1-7, inclusive.

Others, however, are extending it through the following weekend. Thus, their campaigns will not be terminated until Oct. 9.

Only the five West Coast states, Kentucky, Alaska, and Hawaii are not participating.

The Far West has other plans, and Kentucky is bypassing it because oil men there do not want the campaign to conflict with a $100-million highway bond issue, which they are supporting.

The temporary tax is scheduled to expire June 30—but pressure already is being exerted to extend it, and this is what is worrying oil men.

The campaign has only one objective—to muster public support against extension of the expiration date, so that the tax will die on schedule.

It has no direct relation to state motor fuel taxes, but state organizations, which are spearheading the campaign, are hopeful that the educational impact will have long-range effect on the public and legislators alike.

The federal tax on motor fuel currently is 4¢ per gal. State taxes vary, but the national average for federal, state, and local taxes combined is equal to nearly 50% of the retail price on motor fuel.

It is this crushing tax burden which has the industry so apprehensive, especially since the market is saturated with an overabundance of motor fuel, and prices and profit margins leave much to be desired.

Oil men are acutely sensitive, too, to the fact that they are the ones that are berated for the tax bite on motorists—not the lawmakers who increase the tax load.

To resist the pro-extension forces, oil men in participating states are asking millions of motorists and others to sign petitions urging Congress not to extend the temporary tax.

THESE ARE TYPICAL SIGNS AND POSTERS being used by oil men in the gasoline tax petition campaign. Window stickers were custom-designed for each state.

Printed petitions have been distributed by oil companies and state petroleum associations to thousands of dealers, jobbers, and others.

Motorists will be asked to sign the petitions at service stations, when they drive in to refill their tanks or obtain services. The emphasis is on adult signatures—and all such occupants of each car will be asked to sign.

The petitions state the purpose of the campaign briefly, and provide space for signatures and addresses. They have been made up into pads for dealer convenience, and each pad has room for 200 signatures. In all, 600,000 pads have been distributed.

State petroleum associations and organizations, which have been preparing the campaign as individual groups, expect the petitions to generate a strong protest vote against the gasoline tax burden.

Preparations have been under way for several months, and many organizations, including the National Congress of Petroleum Retailers and the National Oil Jobbers Assn., have endorsed the objective and the campaign directly, and indirectly.

Many oil companies are planning to circulate the petitions among their employees in offices, refineries, and other locations. In addition, some nonpetroleum businesses, such as bakeries and trucking firms, have indicated interest too, and are planning to support the drive for signatures in their own establishments.

The signed petitions will be col-

lected by coordinators, and segregated by congressional districts for presentation to representatives and candidates for the House.

The coordinators already are established for each congressional district.

Once the sorting projects are completed, oil men in each district will make personal calls on congressmen and candidates to discuss the tax question, and to present them with visual evidence of the public's feelings.

In metropolitan areas, where it will be difficult to separate the signatures on a district basis, oil men will try to get together with the legislators as a group, possibly at a luncheon affair.

Oil men concede there may be some duplication in signatures, but this will be pointed out to the legislators, so that there are no misunderstandings.

After the representatives have been contacted, the petitions will be regrouped again on a statewide basis, and a similar presentation will be made to U.S. senators.

This too will be done by delegations. But these groups will consist not only of oil men, but of representatives of other industries and professions, as well.

All of this is to be done before the Nov. 8 election. State organizations agree that this makes for a tight time schedule. But they feel that their basic setups are geared adequately to handle each step of the campaign swiftly.

Ultimately, the White House may be contacted. But this, the state organizations feel, is a long way down the road, probably next spring at the earliest.

This, conceivably, might consist of a caravan of trucks from the various states to haul the signed petitions to Washington, and show them to the new President.

During the signature-collecting phase of the campaign, service stations will display window stickers, signs, and posters to call the public's attention to the tax problem.

More than 161,000 acetate window stickers have been distributed to service stations, each bearing a tax figure to the state in question.

Oil companies have purchased more than 150,000 posters. There are four different posters being used, depending upon individual choices.

Billboards also will carry tax messages, and the Committee on Public Affairs of the American Petroleum Institute has made available some of the materials that it prepares for its continuing educational campaign on gasoline taxes. The latter includes three leaflets which can either be mailed or handed out. More than 10-million of these leaflets have been made available to oil companies and state associations.

No one will hazard a guess on how many signatures might be collected. Nor, it seems, has a specific goal been set for either state or national totals.

Much depends upon the service station dealer, and his activity and enthusiasm will spell success or failure for the campaign. State organization spokesmen agree, however, that enthusiasm on the eve of the campaign is running high, and that they are optimistic as a result.

To insure a proper distribution of the petition pads among stations, a breakdown was made allocating one pad originally for stations with monthly gasoline gallonage of between 5,000 and 15,000 gal. and up to ten pads for stations with gallonage of more than 75,000 per month.

Tax Campaign to Feature Old Cars

Oil men have worked up a variety of gimmicks and stunts to focus public attention on the gasoline tax petition campaign that gets under way tomorrow.

Here are some of their ideas:

- Antique cars will parade through the streets with signs such as this: "I've survived three wars and a depression, but the gasoline tax could kill me."
- Horses and buggies will be used too, with signs like this: "High gasoline taxes are putting me back in harness. Sign the gas tax petition at your service station."
- Midget cars will be in evidence, with signs saying: "Driven to it . . . because taxes now add 50% to the cost of gasoline."
- Birthday cakes featuring one black candle on each will be displayed, to denote the temporary tax's first birthday.
- Displays of prewar or older cars will be made, with signs comparing the size of the gasoline tax when the car was new with the present rate.

After years on water . . .

It's Alcohol for Bradford Area

A pilot program marking the first use of alcohol as a flood agent in field use has started in Pennsylvania's Bradford field.

South Penn Oil Co. is operator for the five companies in the joint project, which was initiated last week. The others are Kendall Refining Co., Quaker State Oil Refining Corp., Bradley Oil Co., and Wolf's Head Oil Refining Co.

Four injection wells are used, with a total of 80 b/d of unrefined isopropyl alcohol injected.

Plans call for injecting 27,000 bbl. of the alcohol, at a pressure of 1,100 psi. It's estimated that this phase may take ten months or so, unless the injection rate can be stepped up to the preliminary target of 100 b/d, roughly equivalent to the previous water-injection rate.

Once the alcohol is injected into the Bradford Third Sand, found at around 1,400 ft., the operator will follow with water injection. A South Penn spokesman says it will take from a year to a year and a half, or even longer, before any results can be known.

"This thing's a long shot," the spokesman adds, "and there's a lot we have to learn from the pilot. But we're certainly hopeful." Up to now, he notes, the alcohol-slug process has been tested only in the laboratory.

The four injection wells are spaced on the four corners of a square, with a producing well in the center and eight additional producing wells outside the square. All 13 wells are within the 12-acre project area.

Expectations are that similar projects will follow throughout the 80,000 acres of the Bradford area should the pilot tertiary project prove feasible.

Field reserves are estimated at more than 50-million bbl.

Waterflooding, which had its birth in this area around 1880, is in wide use, but has become uneconomical in the test area.

Cumulative production is estimated at more than 600-million bbl. Production last year totaled 4.8-million bbl.

Transco Unveils Southeast LPG Line

Transcontinental Gas Pipe Line Corp. will build a $63-million products pipeline to carry natural gas liquids from the Gulf Coast to Danville, Va.

The project was announced Monday after a meeting of the Transco board in New York City.

The line will span 1,080 mi. and will serve nine states in the Southeast. There are no natural gas liquids pipelines in this area now.

The new line will be a common carrier, and is expected to be in operation by November, 1961, according to E. Clyde McGraw, Transco president.

It will have an initial capacity of 60,000 b/d of liquefied petroleum gas —principally propane.

Although nothing was said officially, it was understood that part of the line would be 12 in. in diameter, and the balance, 18 in.

A wholly owned subsidiary, Trans-Southern Pipeline Corp., was set up by Transco to build and operate the carrier.

McGraw noted that this will be Transco's second allied operation, the first being Trans-Jeff Chemical Corp., formed in 1959.

The line will originate at Mont Belvieu, near Houston, and will cross Louisiana, Mississippi, Alabama, Georgia, and the Carolinas, in its upward curve to Virginia.

In general, the Trans-Southern line will follow the route of the Transco system, which has been carrying natural gas from the Gulf Coast up the eastern seaboard to New York and other major cities since 1951.

A 215-mi. spur line will be built from Atlanta to the Georgia-Florida state line, terminating in the vicinity of Waycross, Ga.

Two new underground storage depots are planned, one to be located near Eunice, La., and the other near Atlanta, Ga.

McGraw said underground storage is planned for 350,000 bbl. in salt domes near Eunice. Near Atlanta, underground caverns capable of holding 1-million bbl. will be carved in the granite substructure there.

Spur lines extending 35-mi. from Laurel, Miss., to Hattiesburg, and 25-mi. from Linden, Ala., to Demopolis, will link existing privately owned storage facilities to the main line, McGraw said.

Ten terminals will straddle the length of the line, of which nine will be located at existing main line stations.

ROUTE OF THE NATURAL GAS LIQUIDS PIPELINE planned by a subsidiary of Transcontinental Gas Pipe Line Corp. in the Southeast. The line originates near Houston and ends near Danville, Va.

The terminal at Waycross represents the only completely new facility.

Other terminals will be at Baton Rouge, La.; Laurel, Miss.; Linden and Roanoke, Ala.; Atlanta and Macon, Ga.; Greenville, S.C.; Charlotte, N.C., and Danville.

Points at which Trans-Southern will accept natural gas liquids for shipment will be near Mont Belvieu and Beaumont; and near Lake Charles, Eunice, and Baton Rouge.

The market areas to be served by shippers using Trans-Southern pipeline are Louisiana, Mississippi, Alabama, Georgia, the Carolinas, Virginia, Florida, and Tennessee.

These areas currently are being served by railroad tank cars and trucks.

Propane is the principal product needed in these markets, and Trans-Southern's plan is to concentrate on this first. Butane and other products are expected to be transported later in increasing amounts.

The Transco-Trans-Southern project is another sign of the burgeoning picture for natural gas liquids.

Mid-America Pipe Line Co.'s line from New Mexico to Madison, Wis., and the Minneapolis-St. Paul area, is now nearing completion.

Oklahoma Mississippi River Products, Inc., is considering extension of its existing line into the Southeast (PW—Jul.19'60,p55)—the area now being invaded by Trans-Southern. This line runs from southern Oklahoma to the Memphis, Tenn., area.

Lines already in existence include Texas Eastern Transmission Corp.'s from Texas to Ohio, and Phillips Pipe Line Co.'s from the Texas Panhandle to Okmulgee, Okla.

Dudley Tower Named Union Oil President

Dudley Tower, who started with Union Oil Co. of California as a pipeline roustabout in 1935, is now president of the West Coast firm.

Tower was advanced from the executive vice-presidency this week to succeed Reese H. Taylor who, since last April, has been serving both as president and chairman.

Taylor will continue as chairman and chief executive officer. He reassumed the presidency earlier this year upon the retirement of A. C. Rubel (PW—Apr.29'60,p20).

Tower worked his way up through the ranks in his 25 years with Union. He was elected vice-president in 1953, and to the board of directors in 1956.

His election as executive vice-president was accomplished last April 27. Thus, in a matter of months, he has achieved the second highest office in Union Oil.

Slimholes Need Tailored Equipment

Drilling contractors' survey shows more operators would use the technique for economy if rigs and bits were designed to cover limitations with slimholes.

The results of a survey on slimholing indicate that manufacturers and suppliers should think about designing equipment tailored for a 6¾-in. hole size and 4½-in. casing.

The results of the survey, conducted by the Slimhole Drilling Committee of the American Assn. of Oilwell Drilling Contractors, were reported at the AAODC annual meeting in New Orleans this week.

The committee sent out 1,751 questionnaires to operating companies in all areas of the country. It received 185 replies.

The group pointed out that an 11% participation in the survey was "excellent when it is considered that a 2% reply is an average on most surveys of this type."

The slimholes drilled by the operators ranged from 550 ft. to 11,856 ft. in depth, with an average of 4,515 ft. Holes size ranged from 2¾ in. to 9⅞ in., with the most popular size bit 6¾ in.

For casing, the 4½-in. diameter pipe was the big favorite. In casingless completions, 2⅞-in. tubing was used most frequently.

Since the sentiment evidently is strong for more slimholing, the returns were interpreted as a good straw-in-the-wind for equipment manufacturers and suppliers.

Slimholing appears still to be riding a popularity upswing, particularly in development drilling.

In exploration work, 48.6% of the operators replying to the survey said that more slimhole drilling was planned for the future. Some 15.7% did not plan more slimhole exploratory drilling and 35.1% were undecided on their use of the technique.

But for development drilling, 92.4% of the operators plan more slimhole drilling. Only 3.8% did not plan more of that type and another 3.8% were undecided.

The mounting use of the slimhole technique is limited to some extent by the lack of specialty rigs, the survey found.

About 20% of the operators commented that they were forced to drill 7⅞-in. holes with standard rigs when they could have economized with slimhole equipment if it had been available. The savings could have accrued to both the operator and the contractor in the form of lower transportation costs and lower costs for rig components, it was reported in survey replies.

Other limiting factors are short bit life, depths to be drilled, and problems with directional holes.

Most of the replies cited the depth limits for slimholes at between 11,000 and 12,000 ft. because of hydraulics and the frequent roundtrips required due to short bit life.

In some areas, sanding conditions, corrosion, and paraffin deposits pose limitations on slimholes. The operators also noted that it is almost impossible to use the technique in multiple completions.

The survey is considered by many as a good indicator of the trend toward slimholes and a good guide to the type of development needed in suitable equipment.

"The most significant result of this survey," the committee commented, "was that over 10% of all the wells drilled last year in the U.S. were slimholes or were completed by use of the slimhole technique.

"The amount of interest shown by these companies should behoove the drilling industry to start working with the rig designers to design highly portable, low-cost operating drilling equipment for use in the slimhole operation.

"Also bit manufacturers should take their cue from this survey in an effort to develop better small diameter bits."

The economy possible in use of the slimhole tehnique was of the optimistic notes as drilling contractors met to map out what they hope will be a successful counter-attack against ever rising costs.

While contractors have been battling for some time the squeeze of higher prices for equipment and materials in face of tougher competition for business, they took a close look this week at other rising costs.

These included real and proposed hikes in insurance rates (particularly for offshore work) and mounting transportation costs.

The association will fight such boosts in contractors' costs—increases that could mean the end for some.

Many contractors appeared to accept as a fact that "things will get worse before they get better," to use a recurrent phrase.

Such an attitude was summed up by a vice-president of a large drilling firm: "We're getting used to being depressed."

There was concern in some quarters that a continuing cutting of footage rates would inevitably lead to bankruptcy for some contractors. But many contractors felt that the move wasn't altogether bad since "at least, we're getting rid of the shoe clerks in the business."

At least one topic sparked heated debate—the question of how far contractors should go in providing "extra" services.

The subject was argued strongly in corridor and room discussions.

The prevailing opinion was that contractors are digging a hole for their business hopes when they agree to take over more and more of the risks inherent in drilling.

That opinion also rang true when the conversations switched to turnkey drilling. Unless contractors are careful in turnkey drilling, it was explained by numerous drillers, they will find themselves getting in "over their heads, riskwise."

John J. Moran, Moran Drilling Co., Wichita Falls, Tex., was elected president of the drilling contractors for 1961, succeeding W. L. McClusky, M. J. Delaney Co., Dallas. Earl C. Hellums, president of Gracey-Hellums Corp., Houston, was elected national vice-president, succeeding Herbert Wolf, Wolf & Magee, Tyler, Tex.

NEXT WEEK in Petroleum Week

All signs point to a better year for foreign sales of petroleum equipment and supplies in 1961.

But with growing nationalism abroad topping problems of stiffening competition in price and credit, the long-range success of many U.S. companies may depend on how "international" their thinking is today.

Petroleum Week sums up the views of 92 executives in a special report next week.

Crude, Resid Prices Climb In California

Prices for California heavy crude started moving up this week, with the initial push coming from Standard Oil Co. of California and Union Oil Co. of California.

Socal's Western Operations, Inc., raised purchase prices on crude from 1¢ on 20-gravity to as much as 10¢ a bbl. on 14-gravity.

Union's largest increase—10¢ a bbl. —is also for crude of 14- to 15-gravity, with other price hikes ranging down to 1¢ a bbl. for certain oils in the 20- to 24-gravity range.

These advances are the first major changes since September, 1959, when California crudes were cut 5¢ to 25¢ a bbl., with larger cuts affecting middle-gravities. One of the largest price swings on heavy crudes occurred during 1958, when through a series of reductions, prices for 14-gravity Signal Hill crude tumbled 81¢ a bbl.

The companies also hiked prices for residual fuel. Posted prices for all grades of residual fuels to all classes of trade were advanced 10¢ a bbl.

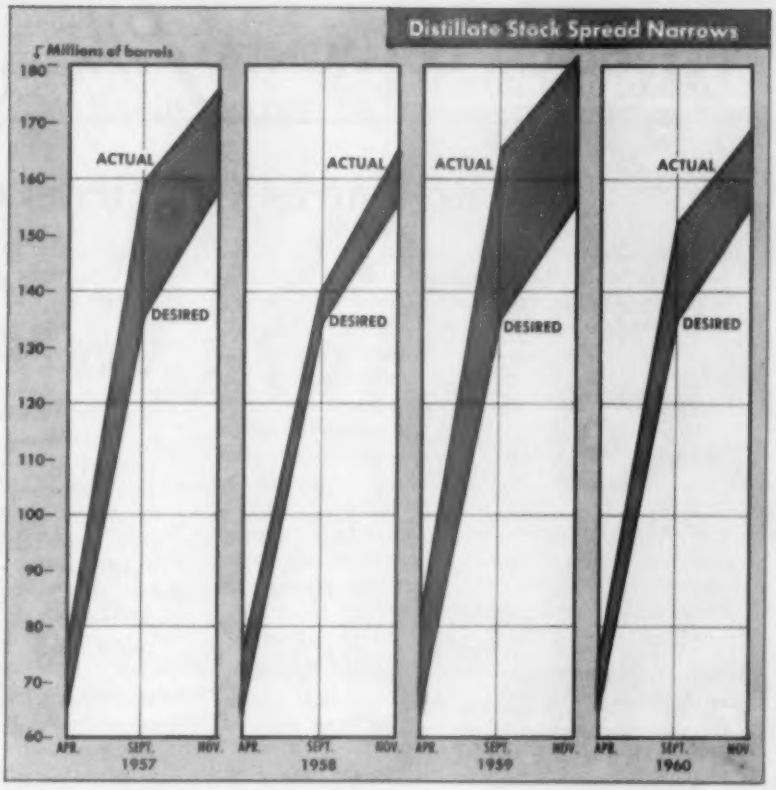
Western Operations said that its increases "were occasioned by steadier demand for heavy crudes and for the heavy fuel oils refined from these crudes."

A heavy fuel price hike of 10¢ a bbl. on the West Coast brings Socal's posting for bunker "C" fuel to $2.20 a bbl. at San Pedro. At El Segundo, the company's new FOB tank car postings for light (PS 300) and heavy (PS 400) fuels are $2.90 and $2.45, respectively.

Heavy fuel discounts have been in effect from time to time, but the latest posted advance, if it becomes general, will be the first since the rising market of 1957. Prices fell sharply in 1958 with "C" fuel at San Pedro, for example, dropping from $2.85 to $2.10 a bbl.

Here are Socal's new crude postings, with the amount of increase in parentheses:

Gravity	Signal Hill	Wilmington
14-14.9	$1.85(10¢)	$1.88(10¢)
15-15.9	1.93(9)	1.96(9)
16-16.9	2.00(8)	2.02(6)
17-17.9	2.06(6)	2.09(5)
18-18.9	2.13(5)	2.16(4)
19-19.9	2.20(4)	2.23(3)
20-20.9	2.27(3)	2.30(2)
21-21.9	2.33(1)	2.37(1)
22-22.9	2.40(1)	2.44(N.C.)



Suppliers Optimistic on Fuel Oil

Last week's hike of 0.3¢ a gal. in wholesale distillate prices by major companies on the East Coast reflects the optimism pervading fuel oil markets.

Esso Standard division of Humble Oil & Refining Co. spearheaded the higher postings. Retail price of Esso's No. 2 fuel oil at a typical eastern market—New York City—is now 14.4¢ per gal., up from 14.1¢ early last week.

Marketers see themselves starting off the coming distillate season on sounder footing than last year, despite high refinery runs all summer.

One reason is that distillate stocks at the seasonal low last April were 5.4-million bbl. leaner than a year earlier.

And the spread between actual stocks, which were 75.1-million bbl. on Apr. 1, and industry estimates of the "desired" level at that date was only 10.1-million bbl. The spread was 15.5-million bbl. on Apr. 1, 1959.

Better-than-normal demand for No. 2 fuel during the "off-season" months kept stocks from accumulating too fast.

So far, off-season demand for distillate—a period spanning roughly April through September—has averaged some 70,000 b/d higher than in the like period of 1959.

Consequently, stocks of distillate at the start of September were only 18.5-million bbl. higher than "desirable," compared with a fat 30-million bbl. a year ago.

Barring a sudden spurt in runs, industry economists say, distillate stocks may rise no higher than 170-million bbl. by Nov. 1—normally the seasonal peak.

At 170-million bbl., stocks would be 14-million bbl. above desired levels, but still 12-million less than a year ago.

Last year, the distillate season began with 25-million bbl. more fuel on hand than the industry considered necessary to maintain ample working inventories.

The danger is that favorable forecasts may tempt refiners to hike throughput.

But what could hold them back is the tight supply of crude.

Stocks of crude, which declined steadily since early July, took a turn upward last week. The increase was nominal, however. Inventories rose a slight 2-million bbl.

PETROLEUM COMMENTS / By Wanda M. Jablonski

Venezuela Reassures Oil Firms on Pricing

The government of Venezuela has now taken positive action to clarify its position on crude oil pricing.

In a series of meetings during the past several weeks, the government has given oil companies the long-awaited assurance that it will accept their realization on actual oil sales prices (except for certain excessive discounts) as the official basis for tax payments.

This means that the government will not insist on "posted" prices—which are considerably higher than current sales prices—as the basis for computing the government's tax on oil company profits.

These assurances were formally given by Venezuelan Oil Minister Juan Perez Alfonzo and Finance Minister Jose Antonio Mayobre, with the reported backing of President Romulo Betancourt.

* * * *

As a result, the question of whether Venezuelan crude postings will be reduced in line with the recent 5% cut in Middle East postings has now dwindled in importance.

It may be safely assumed, of course, that if the government had not clarified its position on this matter, Venezuelan "postings" would have been reduced following the August cuts in the Middle East.

The question of keeping "posted" prices somewhat in line with trends in actual sales prices is still important in the Middle East, however, because there the oil companies are obliged to pay taxes to the governments on the basis of postings.

As a result, the companies there are forced to absorb the full amount of the discounts.

* * * *

Technically, the Venezuelan government's new statement of its price-taxing position does not represent an actual departure from previous policy. But it does represent an important clarification of a principle at a time when its practical application has far greater significance than heretofore.

For some years, previous Venezuelan administrations have accepted the principle of actual realizations as the basis for oil company taxes. But this had not been much of a problem because, until the middle of 1957, markets had been strong, and actual realizations were not far out of line with posted prices.

With the deterioration of markets since the end of 1957, however, discounts have grown progressively sharper and progressively more widespread.

The key point is that the oil companies' tax returns for 1958 and 1959 are only now coming up for audit by the Venezuelan tax authorities. And the great fear has been that the government might not allow the increased discounts in the 1958 and 1959 tax returns.

(The importance of this point is often under-estimated, under the mistaken impression that most of the Venezuelan oil is sold by companies to their affiliates at full posted prices. This was true once, but no longer: Now the great bulk of all Venezuelan oil is being moved at discounts.)

* * * *

What the Finance Ministry and the Oil Ministry have now agreed to do is accept actual realization, both in the 1958-1959 returns, and for present and future sales (except for a few extreme cases).

And starting Jan. 1, 1961, the Oil Ministry has informed the companies that the following broad rules will be applied:

(1) To "nontraditional" markets, discounts of 10% off posted prices will be allowed (that is, 25¢ off crudes posted at $2.50);

(2) To "traditional" markets, discounts of more than 10% will be authorized "where necessary to meet commercial competition." (Some companies have been informed that a 50¢ discount off $2.50 posted crudes is generally regarded as acceptable to the U.S.)

Until Jan. 1, companies will be allowed to continue discounts under present contracts up to 50¢ per bbl. Discounts greater than 50¢ must be revised within a brief deadline.

* * * *

One question is still unclear: Will the 10% discount limit to "nontraditional" markets be applied only for tax purposes, or for actual sales purposes?

If it is the former, oil companies will at least be able to continue selling their Venezuelan crudes to such areas as long as they absorb the extra discount. (This, in fact, is the compromise worked out recently by the Oil Ministry in the case of some smaller companies with contracts providing for discounts of 75¢ and $1.00 per bbl. below posted prices: They were allowed to continue the contracts, but with only 50¢ of the discount permitted for tax purposes.)

If, on the other hand, the government attempts to apply the 10% discount limit to actual sales, this would penalize the many "newcomer" companies that acquired Venezuelan concessions in 1956 and 1957.

Being "newcomers," they have no "traditional" markets outside of the U.S. (and even those are now limited by the U.S. import curbs). Obviously, they don't stand a chance of selling Venezuelan oil today at only 10% off the current fictitiously high posting.

In effect this would be tantamount to banning sales by newcomers in foreign markets outside the U.S.

Obviously, this would raise a much bigger question: Could these companies accept such price restrictions, after having paid the Venezuelan government huge bonuses for concession rights—including the right to export their oil freely?

What's New / IN THE INDUSTRY

Gulf Oil Corp., after four years of exploratory drilling, has brought in a discovery well in Bolivia—the first on its 1.2-million-acre Zone 1 concession. The well, Caranda No. 1, is located about 30 mi. northwest of Santa Cruz. It flowed 325 b/d of 50-gravity oil through ¼-in. choke and perforations at 5,850 ft. Gulf said a lower interval also tested oil of similar gravity, and that further drilling will be carried out to evaluate the discovery zone. Gulf's concession, in the central part of Bolivia, was granted in 1956. Bolivian Gulf Oil Co., which is among the most active in the South American country, is owned 87% by Gulf, 7% by Falcon Seaboard Drilling Co., and 6% by Williams Bros.

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The State of California is seeking U.S. Supreme Court permission to intervene in the move for a rehearing of the tidelands case. At the same time, 11 states joined Florida in support of the applications of Mississippi, Louisiana, and Alabama for a rehearing. These were Arkansas, Colorado, Georgia, Indiana, New Mexico, North Carolina, South Carolina, Oklahoma, Tennessee, Utah, and Virginia. Their contention is that there is no justification for treating the states differently, as the Supreme Court did in its May 31 decision. California's petition, filed as a "friend of the court," held that the tribunal "failed to give proper weight to congressional policies."

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Independent producers in Western Canada have banded together in a new organization to press for a national oil policy now. A. G. Bailey, vice-president of Bailey Selburn Oil & Gas, Ltd., and of Alberta Gas Trunk Line Co., Ltd., was elected president of the organization, to be known as the Independent Canadian Petroleum Producers. Other officers include Charles Hay, president of Royalite Oil Co., Ltd., vice-president, and J. F. Hardy, vice-president of Central-Del Rio Oils, Ltd., treasurer. The membership of 31 represents an important part of Canada's independents. Participating companies plan to retain their memberships in the Canadian Petroleum Assn., but are going all-out for fast action on the question of a national oil policy now. They asked the Ottawa government for an early decision.

•

New and better instruments, and more automation, were cited this week as primary needs of the oil industry. E. D. Reeves, vice-president of Humble Oil & Refining Co., told the Instrument Society of America at a New York meeting that much has been achieved so far, but there's room for improvement in all areas. As an example of what he had in mind, he said exploration people would like to have something as simple and effective as a military mine detector to help them in their work. He said oil transport represents the biggest challenge for automation and instruments.

•

The value of U.S. petroleum investments overseas went up last year, but earnings declined, according to a Commerce Dept. survey completed this week. Total investments in 1959 were placed at $10.4-billion, up from $9.8-billion in the previous year. Earnings from U.S. direct foreign investments last year were $1.2-billion, compared with $1.3-billion in 1958.

The largest identified investments are in Latin America, totaling $3-billion in 1959, up $200-million over 1958. Canadian investments rose to $2.5-billion and European investments advanced to $1.5-billion, both up $200-million from 1958. Investments in all other areas totaled $3.4-billion, unchanged from 1958. The decline in earnings was reflected in all areas in 1959.

SCALE PROBLEMS?

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Looking Ahead in Washington

Washington
McGraw-Hill
Bureau
September 30, 1960

The State Dept. has decided to go ahead with the planned visit of a Soviet oil delegation to the U.S. starting Oct. 10. The fate of the reciprocal trip was up in the air for several days, while high department officials deliberated on possible cancellation of the tour. Soviet press accusations of espionage against two U.S. government officials who were members of the delegation that toured Russia in August forced reconsideration of the bid to the Russian oil men. After a report from the U.S. embassy in Moscow, the State Dept. decided the charges were unfounded, but not serious enough for diplomatic retaliation. The two government men involved, Alexander Gakner and Robert Ebel, of the Interior Dept., were accused of espionage in an Izvestia article. But there were no other Russian complaints, so the State Dept. dropped the matter as "just another Russian attempt to use any incident for propaganda purposes."

U.S. oil men who toured Russia are surprised at the espionage charges. W. W. Keeler, of Phillips Petroleum Co., who headed the delegation, said all members were most circumspect and careful at all times to follow Soviet rules and regulations. Gakner, Keeler said, was of particular help to the delegation because of his ability to speak Russian. The Soviets even urged that Gakner accompany their delegation on the tour of U.S. oil facilities.

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Some probable changes in the imports program—affecting both crude and residual fuel—are in the works at the Interior Dept. For residual, the idea still is to admit more importers on a larger scale and reduce the allocations of several major companies. The over-all level of residual imports into Districts I-IV is unlikely to be changed. On crude and unfinished oil, imports may be reduced to account for shipments of crude and products from the West Coast area to Districts I-IV, growing use of natural gas liquids, Puerto Rican re-exports to the U.S., and other factors.

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Look for more attacks by the House Judiciary Celler Committee on the Justice Dept.'s handling of consent decrees with oil companies. Chairman Emanuel Celler (D., N. Y.) makes no bones about his displeasure in a final report of his committee, just released. Attacking the oil pipeline consent decree in effect since 1941, Celler wrote: "It is beyond dispute that the record of the Dept. of Justice, in its efforts to enforce the oil pipeline consent decree, is bad."

Not only the Justice Dept., but also the Interstate Commerce Commission, drew Celler's wrath. "While the ICC nominally is responsible for regulation of the oil pipeline industry, in practice the industry itself decides what the ICC will do, and is able to determine the extent and character of its own federal regulation."

•

Tennessee Gas Transmission Co.'s latest setback before the Federal Power Commission comes as a surprise. An FPC examiner has dismissed the company's application to import 204-million cf/d of natural gas from Canada at Niagara Falls, N. Y. The ruling came from the bench—an unusual action—and upheld a staff motion for dismissal. FPC staff attorneys claimed the Tennessee application was vague on prices and markets.

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Efficiency: Key to Drilling Future

- **It's becoming more important as the margin between rising costs and competition squeezes tighter.**
- **Steady progress, however, is being made toward reducing drilling cost and improving performance.**

The successful drilling contractors of the future will be those who turn more and more to efficiency and service, W. J. Goldston, president of the Mid-Continent Oil & Gas Assn., predicted this week.

He told the annual meeting of the American Assn. of Oilwell Drilling Contractors in New Orleans:

"Our problem, as drilling contractors, is that we are apparently trying to do the same thing the refiners are doing. We are overproducing.

"The contractors who will survive are those who turn to efficiency and service more and more and spend less on such things as contacts.

"Oil companies have reached the point where competition is really fierce. They can no longer afford to do business with the inefficient and incompetent, even if they are hale fellows well met."

Drilling contractors are going to have to figure costs, he said, "figure them out with a sharp pencil, then add a fair profit and go ahead."

W. L. McClusky, president of the American Assn. of Oilwell Drilling Contractors, advised contractors to do a better job of selling their service rather than price alone.

"The race to keep rigs busy," he said, "has resulted in bidding for work, not with our own costs in mind, but only with the idea to get the price a dime or more lower than we think our competitors will bid.

"If you think you can do a better service than your competitor can, shouldn't that quality be worth more than his price?

"In other words, we are not good salesmen. We have tried to let the dollar sign do the selling."

Future "volume of business will be slow," McClusky added, and "we shall have to watch costs closely and strive to realize the most from our manpower, machinery, and management.

"Training programs in accident prevention, drilling practices, and economics will be a must in our programs."

On the technical front, recent tests indicate that contractors may be able to lower drilling costs by increasing the weight and rotary speed on toothed rock bits as the bit becomes dull.

Comparisons of this method of drilling with the constant weight and speed practice were presented to AAODC members by E. M. Galle and H. B. Woods, Hughes Tool Co.

Just how much and when the weight and speed are increased is a matter of mathematics, using empirical formulae for drilling rate, rate of tooth dulling, and bearing life.

With this information, graphs and charts can be worked out to enable development of the weight and speed programs.

The application and effectiveness of this procedure, they said, is hinged to the accuracy of the fundamental equations, which in turn must apply to the formations drilled.

The necessary information may be obtained, they added, from holes drilled in the same field, providing the drilling doesn't vary appreciably from hole to hole.

By increasing the weight and speed as the bit dulls, more work is derived from the bit.

In many cases where essentially constant weight and rotary speed are used, Galle and Woods reported, bits are pulled because of a low drilling rate with considerable cutting structure remaining.

When rotary speed and weight are increased, they said, "an economical drilling rate is maintained as long as cutting structure remains."

Results of four tests utilizing the variable weight and speed method show an over-all increase of 23.4% in footage per bit, and 8.9% increase in the drilling rate, and a 20.9% reduction in drilling cost.

Of the four test holes drilled, one was in the Zulus area of eastern Venezuela, one in the Zapatos-Zulus field of eastern Venezuela, one in the Headlee field of West Texas, and one in the Keystone field of West Texas.

Total footage was 17,833 in the test wells and 18,083 in the conventionally drilled wells; number of bits, 100 and 132.5; footage per bit, 178.3 and 136.4; total rotating time in hours, 1,220.5 and 1,362.5; average drilling rate in feet per hour, 14.6 and 13.3; total cost, $166,488 and $213,562; and average cost per foot, $9.34 and $11.81.

In addition, percussive air and gas drilling has been successfully extended to hole sizes as large as 13¾-in.

J. E. Eckel and A. S. Murray, Jersey Production Research Co.; B. M. Van Meter, Carter division of Humble Oil & Refining Co.; and W. E. Liljestrand, Mission Mfg. Co., told AAODC members that the new 8-in. hammer drill is a proved advantage in drilling in areas where extremely hard rock begins at the surface.

Conventional rotary methods, they said, can't provide enough weight for effective drilling under these conditions.

The 8-in. drill is essentially the same as the smaller model previously developed. The big difference is that the 8-in. model has a larger hammer (170 lb.) and exerts the larger force of 337 ft.-lb. when operating at a 275 psi. pressure drop.

The larger model also allows for more rugged construction than can be obtained in the smaller design.

In drilling 4,500 ft. of test holes 9⅞-in. and larger, the 8-in. hammer drill drilled 1⅔ to 2⅓ times faster than by rotary means with 30% to 60% more bit life.

In drilling 2,020 ft. of 9⅞ in., 11 in., and 12¼ in. hole, the hammer drill averaged 16.3 ft. per hour and 140 ft. per bit compared with rotary air drilling in the same hole at an average of 6.9 ft. per hour and 75 ft. per bit.

In another test, the hammer drill averaged 16 ft. per hour compared with 3 ft. to 7 ft. per hour in previous rotary drilling at light weights.

The large hammer drill also appears to reduce the danger of hole deviation.

The four researchers said that in limited tests the 8-in. hammer drill using light weights and high rotary speeds maintained straight hole in an area where deviation trouble is common.

MOST RESPECTED PACKER

It's known the world over for sheer downright dependability

BAKER RETAINER
PRODUCTION PACKER
PRODUCT 415-D

THE DOUBTS that harass well operators got a real body blow when the now-celebrated Baker Retainer Production Packer was developed some years ago.

This is probably the most predictable (and certainly the most respected) packer ever to go into an oil well. It commands the respect and confidence of operators the world over.

WHAT'S THE SECRET of building a packer so tough and reliable you know it will keep you honest when you recommend it?

For one thing, it takes time—years of performance studies. We've sweated out failures and assessed our successes—sifted out weak points and strengthened the strong points.

This great packer is at work right now in tens of thousands of wells—the average wells, the corrosive wells, the deep, hot, high pressure wells.

THAT'S A TOUGH proving ground—one that has helped us soak up a vast knowledge of what happens to slips, packing elements, and the like, when a packer is downhole. We've got the facts.

Baker made the first retainer packer—for many years the *only* retainer-type packer. The result is a wealth of packer experience that's hard to equal.

This remarkable packer shows it. Over the years we've refined it into a tool that has unyielding stamina. That's why we can call it the most predictable packer of them all.

This great packer has many applications—it's as versatile as it is dependable. It's a single-string production packer that comes in many sizes and bores. Moreover, it is surrounded by a family of accessories that transform it into a dual or triple packer—or into a temporary or permanent bridge plug or squeeze tool. Its formidable pressure-holding capacity makes it in many ways one of the finest of all squeeze packers.

It is set on a wire line—or on tubing or drill pipe. Baker's fast new milling tool mills one out in two to four hours—a fourth the time it once took.

For the latest practical knowledge of how to use Baker Retainer Production Packers, call your Baker Representative.

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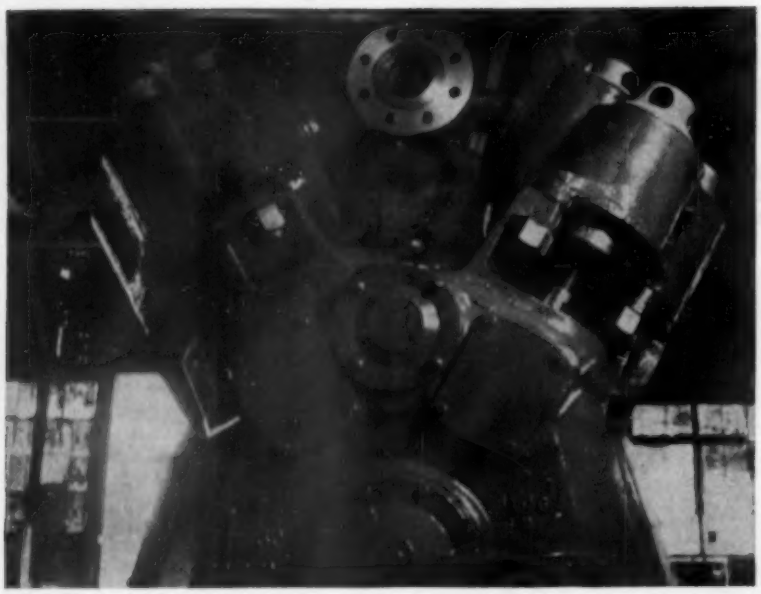


PLUNGER PUMP is more compact and eliminates stop-and-go fluid motion because . . .

Pump Has Integral Manifolding

What is said to be the first plunger-type pump for drilling mud and other viscous fluids ever to be constructed with an integral suction manifold has been introduced by W. R. Barry Pump Co.

The unit features "V" type, quadruplex construction. Four plungers are set at 60 degree angles.

The pumps are being offered with 5-in., 6-in., 7-in., 8-in., and 9-in. strokes, and in horsepower ratings of 150 to 1,025.

A unique manifolding arrangement eliminates the stop-and-go fluid-motion characteristics of most reciprocating pumps.

This feature, says company president W. R. Barry, results in higher suction characteristics and increased mechanical and volumetric efficiency.

"Elimination of this fluid turbidity," he says, "increases pump efficiency and greatly reduces surging. In addition, engine horsepower requirements are lowered, and fuel costs thereby reduced."

In addition to size and weight reductions resulting from the elimination of external manifolding, the Barry pump's integral manifolding achieves added compactness by permitting the valves to be placed very close together.

The 5-in. pump has outside dimensions of 44 x 50 x 47 in., and weighs 5,000 lb. The 9-in. pump has outside dimensions of 67 x 79 x 79 in., and weighs 19,375 lb.

To reduce plunger wear and increase operating life, the pumps are designed to operate at relatively low speeds.

Desired throughput volumes and pumping pressures are retained at these lowered speeds through the use of larger-than-average plungers.

Plunger diameters range from 4 in. in the smallest pump to 7 in. in the largest.

Rated speeds range from 175 ft. per minute in the largest pump to 200 ft. per minute in the smallest.

Recommended working pressures with the standard fluid heads range from 1,000 psi. for the 150-hp. pump to 3,750 psi. for the 1,025-hp. pump.

Special heads and plungers are available to attain greater pressures.

Another unique feature of the pump is its specially designed steel packing with plastic sealing lip.

The plastic material is molded into the steel packing rings, but the function of the latter is not dependent on any bond between the two.

The packing also is provided with plastic shock-absorbing guides and wiper rings on both sides, which take slap-forces off the packing lip and protect both packing plungers.

Other features include cylinder heads and valve covers of threaded design for easy field removal and installation, and four main bearings reduced to short centers to eliminate one cause of crankshaft deflection and/or distortion.

Electrical

Experience in Lake Maracaibo shows that insulation, marine borer protection, and cable armor are the most important factors in submarine electrical cables for offshore use.

This is the conclusion drawn by S. P. Stone of Creole Petroleum Corp., based on Creole's 24 years of experience in oilfield electrification at Lake Maracaibo, Venezuela.

Stone spoke this week before the American Institute of Electrical Engineer's Petroleum Industry Conference at Oklahoma City.

Creole, according to Stone, now has more than 500 mi. of submarine electrical cables of varying sizes and materials in use at Lake Maracaibo.

Solid-type insulation is preferred for subsea use for several reasons, one of them being its ability to maintain integrity in vertical runs.

"In tape insulation," Stone noted, "there is the tendency of the cable impregnating compound to migrate and drain out of the vertical risers.

"Furthermore, mechanical damage to submarine cables insulated with impregnated paper or varnished cambric will permit water to enter the cable at the fault and propagate along the cable—in some instances up to 1,000 ft. or more from the point of damage."

He said another factor favoring the use of solid insulation in submarine

Drilling Mud

Modified lignosulfates, which have been used primarily as thinning agents for gyp muds, are now being used successfully in controlling various other mud systems.

Magnet Cove Barium Corp., one of the Dresser Industries, says that its dispersant can be used effectively in all types of muds, including low-pH, low-calcium gyp, lime, shale control, seawater, and surfactant muds.

Magcobar says that its dispersant, Spersene, has been found to be particularly successful in low-pH, low-calcium muds on the Gulf Coast.

Spersene has been used almost entirely as a deflocculant for gyp muds until recently.

The low-PH, low-calcium mud system, Magcobar says, provides a drilling environment that is resistant to solids build-up and particularly insensitive to salt, cement, anhydrite, and heat, provided adequate concentrations of Spersene are present.

Subsea Cables Have Three Key Needs

cables is the case with which such cables can be terminated, as compared with the skill and care required in jointing and terminating impregnated paper and varnished cambric cables.

Of the solid cable insulating materials in use, butyl rubber has been the most popular so far. But it has a serious disadvantage which is opening the way for new materials.

Creole has had good results with butyl rubber. Most of the submarine cables currently in service at Lake Maracaibo are insulated with this material.

Copolymerization of isobutylene with 1% to 4% of isoprene results in a butyl rubber that is resistant to ozone attack, can be operated at temperatures higher than natural rubber, has a very low water absorption, and ages well, Stone said.

Butyl rubber, however, has a decided drawback for submarine application in that it has a rather low voltage stress allowance and thus requires bulky and comparatively expensive coatings, Stone reported.

Because of this and the increasing voltage requirements, Stone predicts that the thermoplastic materials, polyethylene in particular, will soon be replacing butyl rubber for many applications.

Polyethylene is the most promising solid insulation material that will permit substantial reductions in weight, dimensions, and cost of submarine cables.

Stone pointed out that whereas rubber insulated cables are designed for an average stress of about 30 volts per mil and a maximum stress of 65 volts per mil, polyethylene insulated cables are being used successfully with an average stress of 45 volts per mil and a maximum stress of 75 volts per mil.

He said that some 100 kilometers of 11 kilovolt submarine cable of European design utilizing the liberal stress allowance of polyethylene have been in Lake Maracaibo service since 1955.

Its use, he added, has permitted a one-third reduction in cable thickness and a resultant reduction in insulating costs.

Polyvinylchloride (PVC), another thermoplastic material produced by polymerization, also has found some use in submarine cables.

But its acceptance for high-voltage cables has been limited by a dielectric loss and power factor.

High dielectric losses, according to Stone, can produce sufficient heat in the cable to cause thermal degradation of the insulation.

He said one European manufacturer, however, has successfully applied PVC insulation for 30 kilovolt grounded neutral service.

Submarine cables in Lake Maracaibo require marine borer protection to prevent damage by molluskan-type borers known as toredos.

These small wormlike animals, Stone said, can penetrate the cable surface through tiny holes while young and grow to maturity within the cable filler or insulation, burrowing until cable failure results.

To prevent toredo damage, a hard metallic tape not less than 0.010 in. thick is installed directly under the cable armor.

Stone reported that steel, bronze, and copper tapes placed just inside the armor wires have been successful at Lake Maracaibo.

Round wire armor is by far the most desirable form of armor protection for submarine cables, Stone said.

The cables, he noted, are armored to provide the tensile strength required during installation and the resistance to mechanical damage and abrasion while in service.

He said round wire armor is best because it can take more longitudinal stress than spirally wound metal tape is able to.

Stone also believes the need for stiffness as rigidity of the cable armor is of equal importance to high tensile strength to guard against bends and kinks.

Dispersants Find Wider Application

Magcobar reports that, in many instances, dispersants in large enough quantities will greatly reduce the consumption of both water-loss materials and gypsum as mud treating agents.

The company says that significant advantage of the low-pH, low-calcium mud with Spersene is that one treating agent can be used to control both flow properties and fluid loss, and to provide stability to the weighted muds used on the Gulf Coast.

In addition, the company says, such a system can be converted to other types at any time if desired by simply adding the proper materials, without going through an abnormal thickening stage.

The idea of lowering the consumption of gypsum by increasing the volume of deflocculant is not shared by all mud companies, however.

Baroid division of the National Lead Co., for example, does not recommend that gypsum be replaced with a deflocculant as a treating agent.

The company does say though that its deflocculant, Q-Broxin, can be used in large quantities to replace certain water-loss materials.

Magcobar says that the addition of Spersene provides a simplified and versatile mud system that will reduce the inventory of treating agents at the hole site, and in many cases cut drilling cost.

The company estimates that by using its lignosulfate to control flow properties and fluid loss, the space required at the hole site for treating agents can be reduced by 30% to 40%.

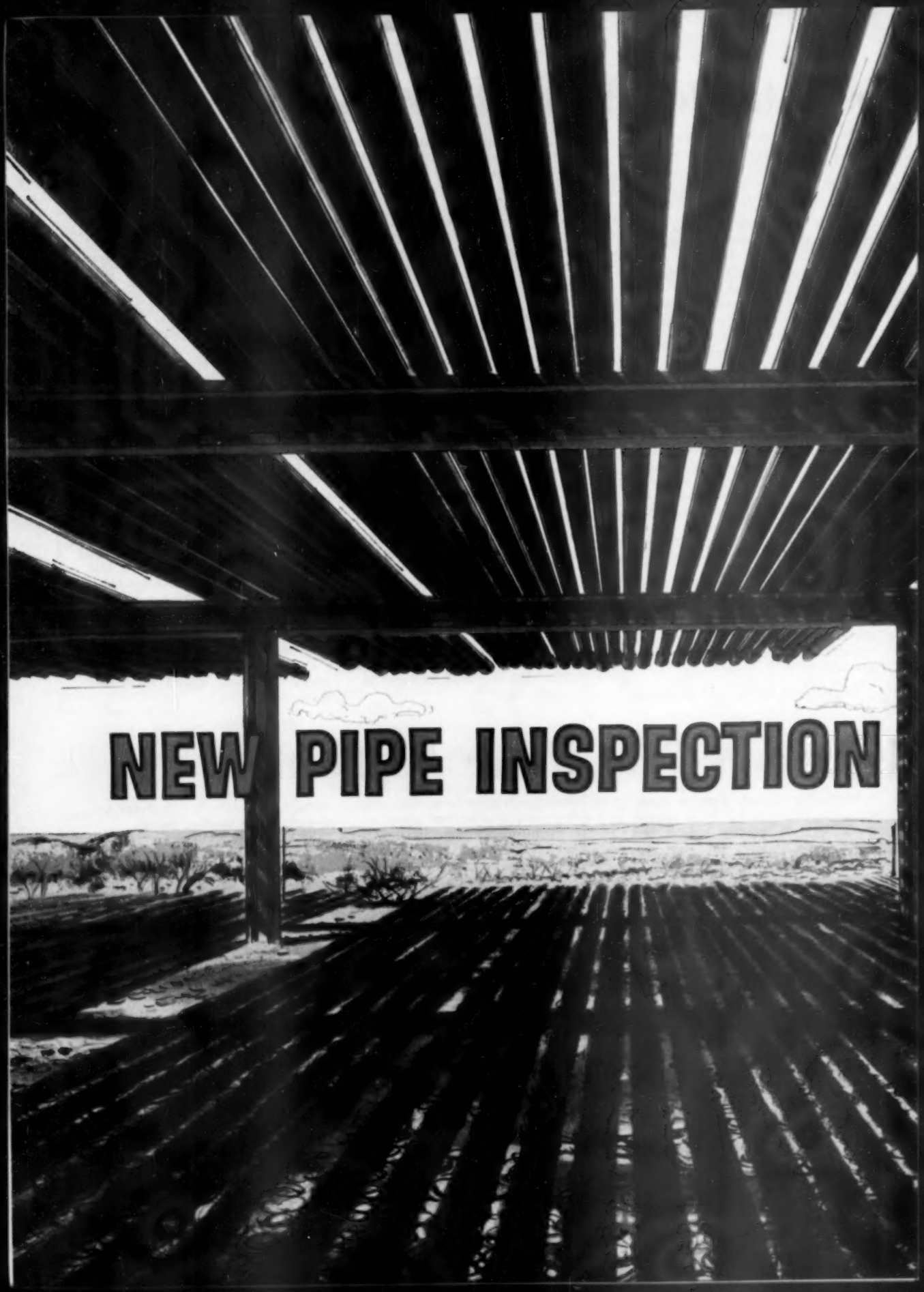
Magcobar says experience indicates that the combination of Spersene and drilling detergent results in a drilling fluid that resists contamination and inhibits swelling of drilled solids.

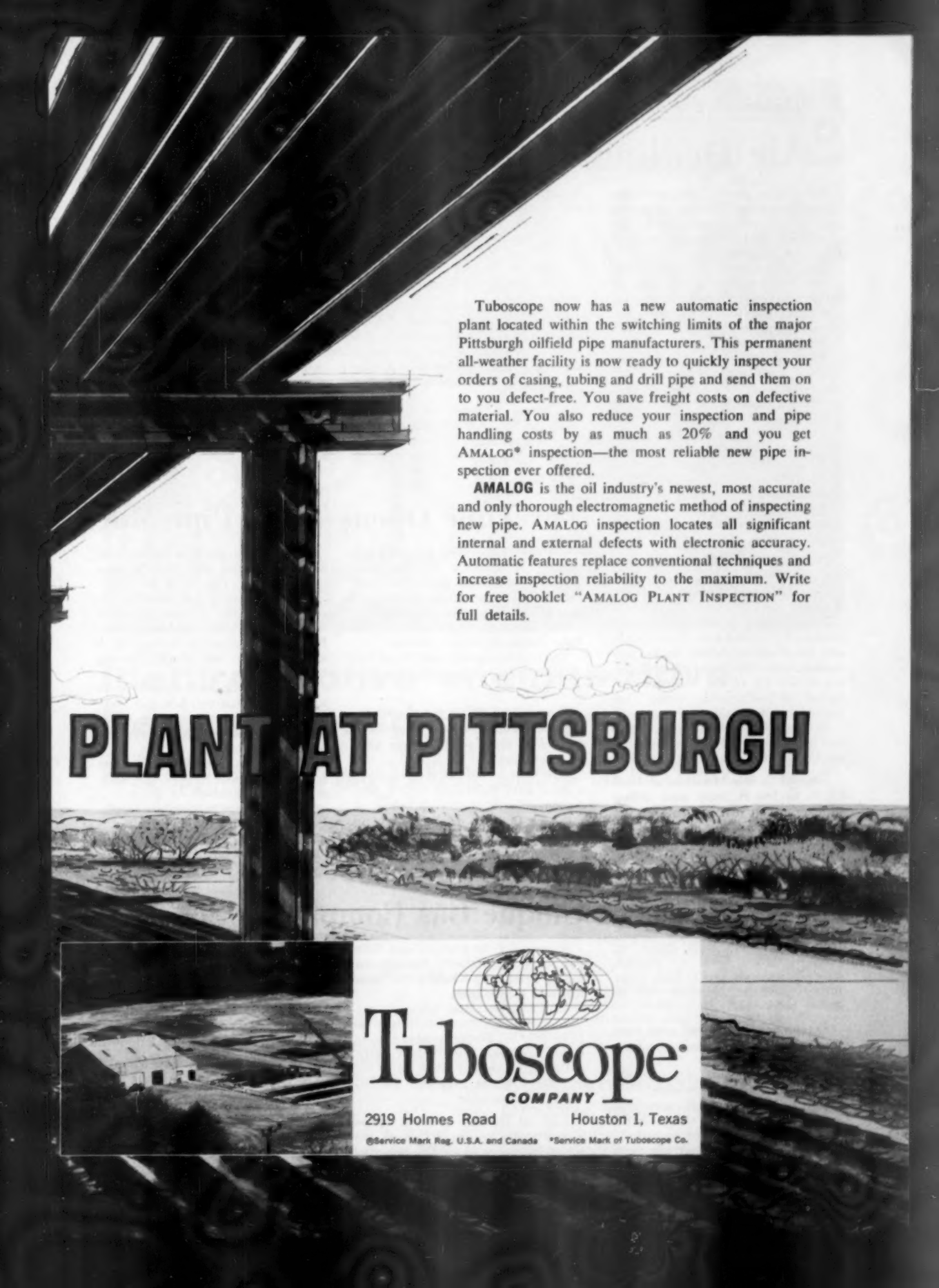
Recent experience, the company explains, illustrates how Spersene can displace other treating agents.

Here are two examples:

- In Roberts County, Tex., low-pH oil emulsion mud was successfully used to below 11,500 ft.—the first hole in the area to be drilled successfully to total depth with low-viscosity mud.
- Prior to reaching anhydrite sections in a hole in Smith County, Tex., low-pH muds were conditioned by using caustic Spersene. No difficulties occurred while drilling through the anhydrite because of the deflocculating effect on the material. The mud at that time was converted naturally to a gyp mud by using the gyp from the formation.

Magcobar engineers say best performance can be reached by starting with low concentations of Spersene and then increasing the concentrations rather than converting to a different type of mud system.


NEW PIPE INSPECTION



Tuboscope now has a new automatic inspection plant located within the switching limits of the major Pittsburgh oilfield pipe manufacturers. This permanent all-weather facility is now ready to quickly inspect your orders of casing, tubing and drill pipe and send them on to you defect-free. You save freight costs on defective material. You also reduce your inspection and pipe handling costs by as much as 20% and you get AMALOG* inspection—the most reliable new pipe inspection ever offered.

AMALOG is the oil industry's newest, most accurate and only thorough electromagnetic method of inspecting new pipe. AMALOG inspection locates all significant internal and external defects with electronic accuracy. Automatic features replace conventional techniques and increase inspection reliability to the maximum. Write for free booklet "AMALOG PLANT INSPECTION" for full details.

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In Oklahoma's East Hennessey Pool . . .

Air Drilling Helps Boost Production

Air drilling and a new perforating technique are leading to better and easier dual completions in the significant East Hennessey pool of Kingfisher County, Okla.

Kingfisher County currently is one of the most active drilling areas in Oklahoma, and East Hennessey is developing into one of the more important pools in the area (PW—Jul. 29'60,p22).

Most of the wells in the pool are completed in both the Manning formation at a depth of 6,600 ft. and in the Meramec formation at about 6,800 ft.

The Manning generally is about 20 ft. thick, while the Meramec appears to be several hundred feet thick, with most wells completed in the upper portion only.

Between 25 and 30 wells have been completed in the pool since its discovery in May, 1959.

The use of air drilling overcomes the problem of mud damage to the deeper Meramec formation of the dual-pay pool.

The Meramec is a highly fractured section. To prevent loss of circulation and the resulting damage to the formation, some operators cemented casing at the top of the Meramec and drilled in with cable tools. This worked, but it was slow and expensive.

El Paso Natural Gas Products Co. says it has solved the problem by using air to drill the Meramec formation.

Intervals in the Meramec of from 66 ft. to 146 ft. have been drilled with air at an average rate of ten minutes per foot.

El Paso says leased air compressors with a delivery capacity of 900 cu. ft. per minute at pressures up to 1,400 psi. are satisfactory.

Water and a diluted soap solution are injected into the air stream at a rate of 5 bbl. per hour to prevent formation cuttings from caking up when formation fluids are encountered. By using air, says El Paso, larger intervals of the Meramec can be drilled economically.

Fracturing with oil and sand have resulted in increased production from the Meramec.

Fracture treatments of up to 40,000 gal. of oil have been used.

El Paso says that wells completed in this manner have shown initial production potentials of around 45 bbl. of oil per hour, about 2½ times the average potential for wells in the pool completed by other procedures.

The company feels the increase is due to the combination of (1) drilling more of the Meramec, (2) the fact that air drilling doesn't damage the pay, and (3) the good response to fracturing.

Completion of the shallower Manning formation, which is drilled with mud, is aided by a new perforating procedure whereby the pay is perforated after both tubing strings are hung in the hole.

Manning pressures are such that oil in the hole will not prevent blowouts in many cases, El Paso says.

Killing the pressure with water or mud has proved inadvisable because of damage to the formation.

The new technique makes it possible to land both strings of 2⅜-in. tubing and completely flange the wellhead before perforating.

This is accomplished by going through the short tubing string, which is hanging open-ended above the perforating interval. The perforating gun used for this is a 1½-in. steel tube jet gun, with all charges pointed in the same direction. A mechanical orienting decentralizer is used to direct the charges away from the longer tubing string, which is run through the Manning and set into a packer above the Meramec.

Tex-Tube Opens Third Pipe Mill

The new, high-speed pipe mill just opened in Houston by Tex-Tube, Inc., is a continuous production unit capable of a maximum production rate of 165 ft. of pipe per minute.

The mill is the third built by Tex-Tube during its 14-year history.

The unit represents some $1-million of the company's current expansion program.

The new unit utilizes the electric resistance welding method to turn out an endless seam product from coils of sheet steel.

Steel coils are fed automatically into a shear joint buttwelder with a continuous ribbon of steel fed from it into a shotblast edge-conditioning unit, and then through shapers and formers into the welding device.

The mill can produce lightwall or heavywall tubing and pipe in sizes ranging from 1½ to 5 in. Interchangeable forming and pressure rolls make it possible to manufacture a wide range of goods, including structural and mechanical tubing in a variety of sizes and shapes. Among other features:

- It is the first time that an automatic-feeding coil box and strip-leveling equipment have been incorporated as an integral part of the coil-handling equipment.
- The mill contains the first production model of a hydraulically driven traveling cut-off—a "flying saw"—which cuts pipe to the proper length. By traveling with the pipe to be cut off, the device permits the 165-ft.-per-minute production rate.

Unique Gas Completion Sought

A proposal to produce gas from two zones intermittently through one tubing string is now before the Texas Railroad Commission.

Oil Lease Operating Co. seeks permission for the completion method in its No. 2-A Foster Lumber Co., in Cold Springs field, San Jacinto County.

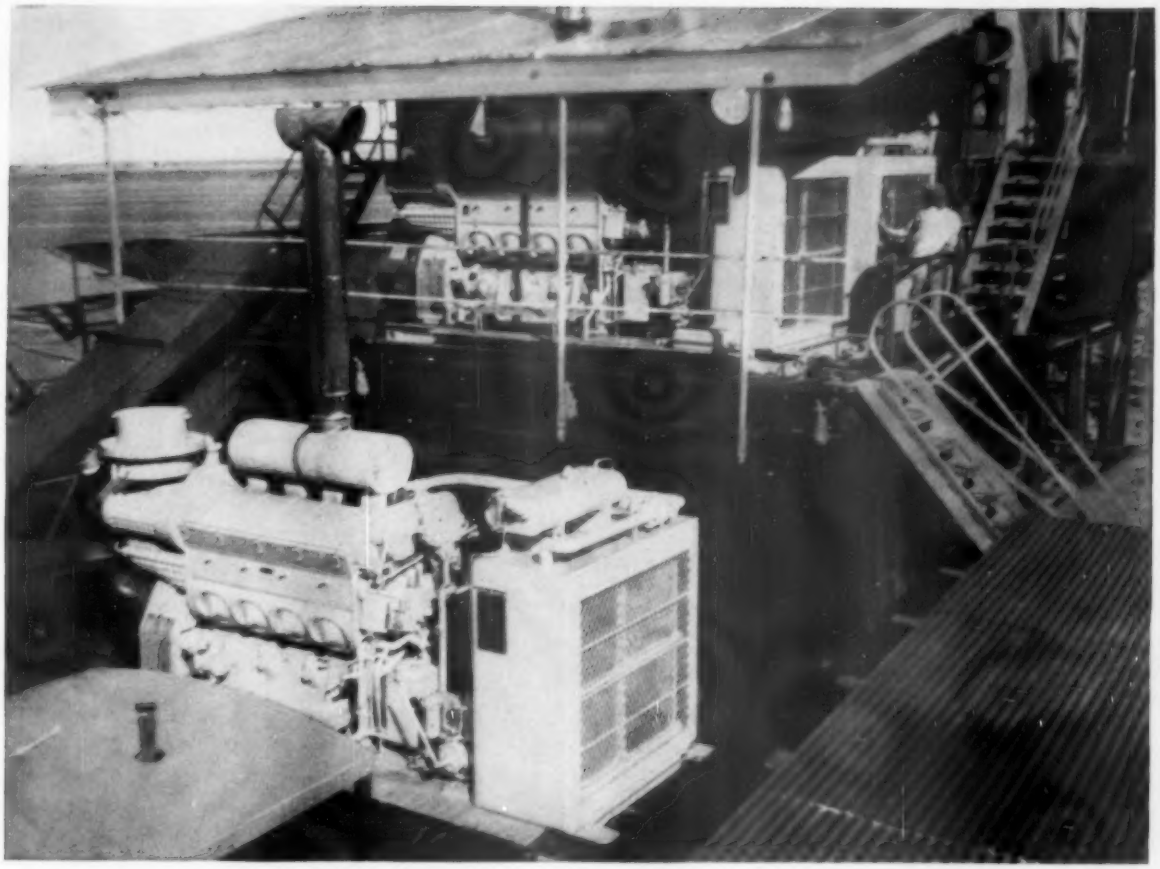
Production would come from the 10,200-ft. Wilcox zone and the 10,500-ft. Wilcox zone.

Each of the two zones is to be intermittently produced through the tubing by means of wireline-actuated tool inserted into the tubing string.

A Baker Model F packer is set at 10,191 ft. and a Baker Model D packer is set at 10,315 ft.

The selective production is accomplished with an Otis Engineering Type S side door choke, which through wireline manipulation can blank off one zone and allow production from the other.

Oil Lease says it plans to produce from each zone six months at six-month intervals. Corrosion inhibitor is to be injected daily.



Electro-Motive engines drive Penrod's deep-drilling rig

First application of two 1000-hp Diesels on mechanical rig

Penrod Drilling Company's Rig 15 is one of the biggest mechanical rigs in deep-drilling capacity —25,000 feet. Yet, it accomplishes this with just *two* normally aspirated Electro-Motive Diesel engines on the draw works.

One of the rig's two mud pumps is V-belt driven off the rear of the engine compound and the second is driven by a separate Electro-Motive skid-mounted with the pump.

Penrod's choice of Electro-Motive Power for the big rig was based on three factors:

Economy of operation

—two Electro-Motive Diesels cost less to run than a multi-engine compound of similar horsepower, plus reducing maintenance with fewer engines to service.

Fast rig-up and take down

—with only two engines, mobility, efficiency and economy of transportation are provided. At its present location, Rig 15 was set up in two days and drilling began the morning of the *third* day.

Dependability

—although this is the first application of Electro-Motive Power coupled directly to the draw works of a rig, these engines have powered generators on electric rigs for many years. Their performance, reliability and low maintenance have been instrumental in setting a number of drilling records.

This is just another example of Electro-Motive Power; Power that is designed, built and backed by *one* manufacturer. See your Electro-Motive representative—ask about this versatile power for economical drilling and pumping operations.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS · LA GRANGE, ILLINOIS

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with the Exclusive Rotating Seats

These valves handle the most abrasive and corrosive fluids—cannot freeze—cannot develop excessive body pressure; provide up-stream seating, double block and bleed, all with unbelievably easy operation.

CAMERON BALL VALVES SEAL ON A NEW SURFACE WITH EACH OPERATION

ROTATING SEAT PRINCIPLE

CAMERON BALL VALVES use an advanced form of the exclusive rotating seat principle* made famous in Cameron's Type "F" Gate Valve. Each operation of the valve partially rotates the seat to change the relation of the mating surfaces and to provide a continuous reseating action.

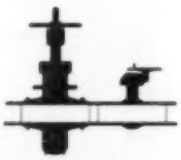
The astounding improvement in service life and tightness brought on by this advancement places the CAMERON BALL VALVE in a completely new dimension of reliability and extended use—permits for the first time "sealed for life" construction.

*Patents Applied For

NEW MANUFACTURING CONCEPT

Cameron has developed a new technique of manufacture, incorporating a new design*, which permits forging, machining and welding in successive steps. This results in a new kind of structure that is totally accurate and the ultimate in simplicity.

*Patents Applied For

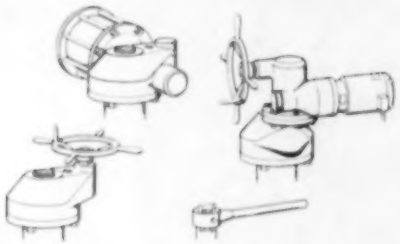


COMPACT DESIGN

This new design concept eliminates bonnets, gaskets and joints and all the problems that arise from them. The weight of these valves is remarkably low and they require only a fraction of the space needed for other valves.

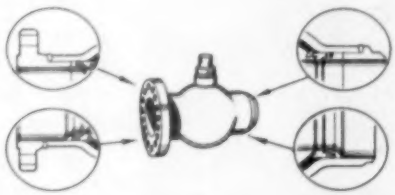
NO MORE LUBRICATION

CAMERON BALL VALVES require no lubrication at any time. Moving surfaces slide on low friction Teflon to seal all joints and provide a life-time of easy operation and bubble-tight service without lubrication.



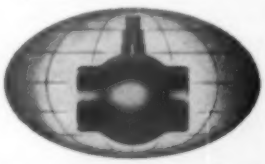
OPERATORS

The CAMERON BALL VALVE requires only a fraction of the effort that other valves must have to operate. Much larger valves may be lever operated with ease. When necessary, highly efficient gear operators requiring a minimum of turns and effort are provided. All types of electrical, pneumatic and hydraulic operators manufactured by Cameron are available and special operation problems are solicited. Operators of other manufacture may be installed on request.



SIZES AND TYPES

CAMERON BALL VALVES are available in regular and full bore sizes from 2" to 36" in W.P. 150 psi to 5000 psi. They may be provided, with any end preparation required. Larger bore sizes are available on special order.



CAMERON BALL VALVES are available and will be manufactured worldwide in five Cameron Plants—France, England, Canada, Mexico and the United States. Processes in each plant follow the same specifications and rigid controls established by the home plant in Houston, Texas.

92%

OF THE WORLD'S
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All around the world it has been conclusively demonstrated that Magcobar's better-engineered drilling mud products reduce unnecessarily high drilling costs. Wherever you are, a planned Magcobar mud program can mean faster drilling rate with less down time. And at the same time, a cleaner hole, better cuttings, better logging, and better cores can result.

The benefits of a good mud program, a *planned* Magcobar mud program, are reflected in total drilling cost. These benefits can extend even to better and more production without the use of stimulants.

On your next well, reduce hole time, speed up drilling, stabilize the hole, and reduce wear and tear on drilling equipment. You'll be in good company, too, right along with the 92 per cent of the world's oil companies who use Magcobar now. And you'll be helping yourself with the better-engineered mud products of Magcobar.

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Well Done With Magcobar Technology

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Kansas May Change Rules In Multizone Area

The Kansas Corporation Commission is considering putting the multizone oil and gas producing area in the southwest corner of the state under one basic set of rules.

The commission last week launched its investigation, which will cover Eubank field and the surrounding Kearny, Finney, Grant, and Haskell Counties.

At present, several sets of rules have been adopted for the area.

One of the points to be determined will be common sources of supply—the Lansing-Kansas City formation specifically.

Some operators have asked that the zone be split into two common sources, even though the formation is regarded by the commission as one source through the rest of the state.

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Signal Gets 1,506-Acre Residential Drilling Area

Signal Oil & Gas Co. has obtained a 1,506-acre residential drilling area in Los Angeles, said to be the largest ever.

The area comprises 11 separate districts on the west side of the city. Signal, operator for itself and Richfield Oil Corp. (L.A.), has 14 producing wells in West Los Angeles drilled from sites on Rancho Golf Course and Hillcrest Country Club.

The new drilling area will be explored from sites on the two golf courses and a site in Culver City.

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Leasing News

Alberta will offer oil and gas leases covering 23,802 acres in Ewing Lake, Judy Creek, Pembina, Swan Hills, Virginia Hills, and other areas on Oct. 25.

At the same time, the provincial government will offer as a reservation 99,840 acres in the Clear Hills Provincial Reserve.

New Mexico's September sale of oil and gas leases totaled $286,874, believed to be the lowest in modern times.

Pure Oil Co. paid $18,500 for a 639-acre tract 24 mi. west of Jal in Lea County for top bid in oral bidding. High sealed bid of $104 per acre was made by Cosden Petroleum for an 80-acre tract 36 mi. northwest of Lovington.

Bidders paid an average per acre bonus of $48 for 11,369 acres at the recent sale of Ute Indian lands in Uintah County, Utah.

The lands are in the vicinity of DeKalb Agricultural Assn.'s Bitter Creek gas field.

Shell Oil Co. and Pan American Petroleum Corp. dominated the bidding. Belco Petroleum made the highest per acre bid of $205 for one tract.

•

The Albion-Scipio oil play has pushed leasing interest upward into the northern part of Michigan's Lower Peninsula.

State officials offering 160,000 acres for leasing recently said most of the interest is toward the northern Lower Peninsula where the Trenton formation is closer to the surface.

It is the Trenton that has proved so productive in the Scipio-Albion area of Calhoun and Hillsdale Counties of southern Michigan.

•

Texaco Inc. has spudded its first test from its recently installed permanent offshore platform off Gaviota, 30 mi. west of Santa Barbara, Calif.

The hole at last report was being drilled below 2,172 ft. in about 95 ft. of water. The platform is 1½ mi. offshore.

The company has received permission to build onshore production facilities to handle the expected production from the offshore platform.

•

Pacific Lighting Corp. and Southern Union Gas Co. have joined forces

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities. The offer is made only by the Prospectus.

$2,000,000

Oil Recovery Corporation

6% Convertible Debentures

Due September 1, 1970

Convertible into Common Stock at $15.50 per share

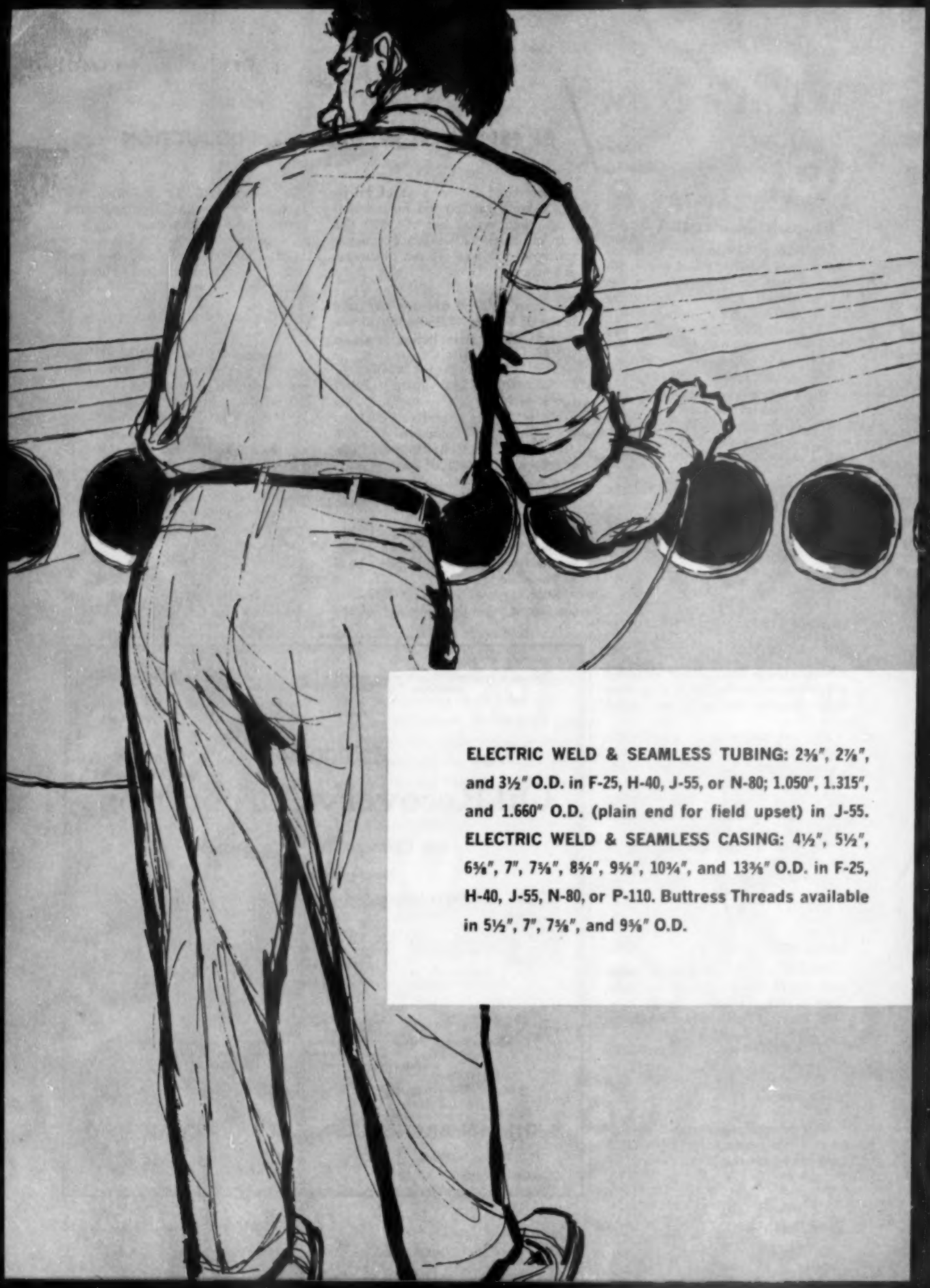
Price 100%

and accrued interest

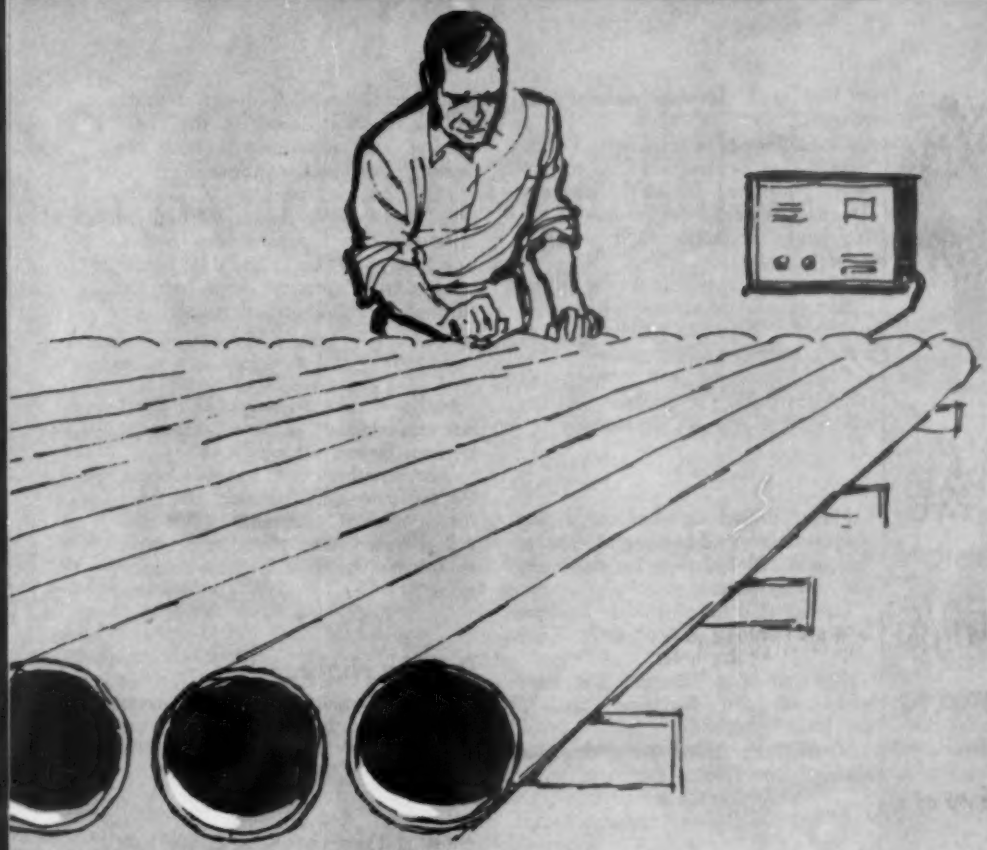
Copies of the Prospectus may be obtained in any State only from such of the several Underwriters, including the undersigned, as may lawfully offer these securities in such State.

LEHMAN BROTHERS ALLEN & COMPANY

September 21, 1960.



ELECTRIC WELD & SEAMLESS TUBING: 2⅜", 2⅞", and 3½" O.D. in F-25, H-40, J-55, or N-80; 1.050", 1.315", and 1.660" O.D. (plain end for field upset) in J-55. **ELECTRIC WELD & SEAMLESS CASING:** 4½", 5½", 6⅝", 7", 7⅝", 8⅝", 9⅝", 10¾", and 13⅜" O.D. in F-25, H-40, J-55, N-80, or P-110. Buttress Threads available in 5½", 7", 7⅝", and 9⅝" O.D.



MAKING REPUBLIC PIPE . . . .

Republic Steel goes a step beyond the usual quality control methods

Republic, one of the world's largest and oldest manufacturers of casing and tubing, looks beyond industry standards of quality.

By itself and in cooperation with equipment manufacturers, Republic has contributed many outstanding testing systems. In fact, over 75% of the Steel Industry's developments in *electronic production inspection* have come from Republic.

Service is a strong point. Republic offers expert metallurgical and design assistance . . . a new, multimillion dollar order entry system that simplifies the job of locating and ordering pipe . . . extensive field and mill inventories . . . and a broad, customer-conscious line of casing and tubing.

Let us quote on your next pipe requirement. Direct inquiries to your Republic sales office. For general data on Republic Casing and Tubing, write Republic Steel Corporation, Dept. PW-9281-A, 1441 Republic Building, Cleveland 1, Ohio.

REPUBLIC STEEL

Cleveland 1, Ohio

Electric Weld • Seamless • Fusion Weld • Continuous Butt Weld • Light Wall • X-TRU-COAT • Plastic Pipe

HIGH-SPEED POINT-TO-POINT TRANSMISSION OF COMPUTER DATA WITH *Bendix-Pacific* **ELECTRO-SPAN**

These high speed systems will relay up to 19,200 bits per second of computer data to other computers . . . to file . . . to display . . . or for similar requirements.

Standard telephone carrier circuits or commercial or military microwave can be used as the communication link.

DESIGN FEATURES

The systems are portable and completely transistorized and are built to rigid military specifications. They feature error rate limit indication and require no special environmental conditions. Optional features include multiple station interconnect and a self-contained test set.

Please write our Electro-Span Sales Department or mail the coupon for complete information.

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to find and develop natural gas reserves.

Pacific formed a subsidiary, Pacific Natural Gas Exploration Co., to join with Southern Union's Southern Union Production Co. in conducting the joint exploration and development program.

The agreement calls for Southern Union to acquire acreage within 100 mi. of the interstate pipeline system serving southern California.

Pacific, in turn, will provide the funds for drilling a minimum of ten wildcats per year on the acreage.

•

Holes drilled in Kansas during August numbered 44 more than in July, but 155 less than for the same period last year.

Of the 270 holes drilled, 70 were wildcats resulting in 6 oil wells, 7 gas wells, and 57 dry holes.

The 200 development tests resulted in 135 oil wells, 12 gas wells, and 53 dry holes.

Total holes drilled so far this year amount to 2,057, compared with 2,721 in the like period of 1959.

•

Eastman Oil Well Survey Co. has acquired McGaffey-Taylor Corp., an oil well service company, through an exchange of stock.

Eastman said its immediate objective is to expand the McGaffey-Taylor line of washing and cementing tools and broaden their market area.

•

Texaco Inc. will pay $3,940,000 during its six-year contract giving it ¾th working interest in 400,000 acres of unleased fee lands held by The Louisiana Land & Exploration Co.

Texaco, which is required to drill seven wildcats on the South Louisiana acreage, acquires the right to explore for and develop oil and gas reserves.

In addition to the bonus, LL&E retains a 15% interest in production.

•

Engineering

Jones & Laughlin Supply Division has moved toward "off the shelf" supply of meter automatic custody transfer equipment by acquiring exclusive distributorship of the Major Engineering Co. line.

The acceptance of Major MACT units, manufactured on a production line basis, indicates that "the standard package is replacing the era of experimental, specially designed unit, with a resultant saving of the engineering and experimental cost required," Jones & Laughlin said.

Major's seven sizes of MACT units range from 1,000 to 20,500 b/d in capacity. The company also makes weir-type prover tanks and dual liquid level control pressure switches for automatic custody transfer units.

•

National Tube division of U.S. Steel has developed a new nonupset buttress-thread tubing.

The nonupset type was developed, the company said, "to meet the need for an efficient, economical joint that will provide greater clearance between tubing and casing in multiple completions."

•

Drilling Highlights

West Central Texas—Sojourner Drilling Corp. No. 1-B B. E. Hankins, Goliad County school land survey No. 143, Taylor County, was completed for 343 b/d of 40-gravity crude based on 7-hour flow through 24/64-in. choke and perforations at 2,969-74 ft. in the Cook. The discovery is 2 mi. southwest of Frederickson pool.

Mississippi—F. H. Shortridge and Justiss-Mears Oil Co. No. 1 Board of Supervisors, section 16-5n-5e, Franklin County, flowed oil at the rate of 198 b/d through perforations at 10,906-12 ft. in the Lower Tuscaloosa. The wildcat is 7½ mi. northeast of Bude pool.

West Texas—Camp Oil Co. No. 1 R. T. Schafer, section 28, block 25, H&TC survey, Howard County, was completed for 185 b/d of 42-gravity oil through 24/64-in. choke and open hole section at 7,493-503 ft. in the Pennsylvanian. The well is 2 mi. southeast of Hobo pool.

New Mexico—Tennessee Gas & Oil Co. division of Tennessee Gas Transmission Co. No. 1 USA—G. E. Jordan, section 15-25s-32e, Lea County, was completed for 277 b/d of 43-gravity oil through perforations at 4,628-702 ft. in the Delaware. The wildcat is 7 mi. north of El Mar field.

Oklahoma—Tennessee Gas & Oil Co. No. 1 Hudson, section 7-1n-10e, Coal County, flowed fluid (50% oil and 50% salt water) at the rate of 17 bbl. per hour for 14½ hours through perforations at 8,114-18 ft. in the McLish. The prospect is 2½ mi. southeast of Centrahoma pool.

In Baghdad Communique: No Surprises

Participants in the recent Baghdad talks among Middle East oil exporting states and Venezuela agreed that none of them would accept any advantageous treatment in the form of increased exports or improved prices—if such offers were made by companies to "discourage" application of "any unanimous decision" they might take in the future.

That was the one new element in the Baghdad Communique as officially issued last weekend by the governments concerned that was not previously outlined in earlier announcements (PW—Sep.23'60,p26).

Othewise, the final text contained no surprises, and no firm resolution on production controls, despite anticipatory rumors to the contrary in the Middle East.

Here's the full official text of the resolutions, as signed in Baghdad Sept. 14 by chiefs of the five delegations: Dr. Talaat Shaibani, Iraq; Fuad Rouhani, Iran; Ahmed Sayid Omar, Kuwait; Abdullah Tariki, Saudi Arabia; Dr. Juan Perez Alfonzo, Venezuela:

By invitation of the Republic of Iraq, the conference of petroleum exporting countries, composed of representatives of the Republic of Iraq, Iran, Kuwait, Saudi Arabia, and Venezuela, which henceforth will be referred to as founding members, met in Baghdad from the 10th to the 14th of September, 1960, and having considered:

- That the members have in progress many necessary development programs, financed principally by the income derived from their petroleum exports;
- That the members must depend to a high degree on petroleum income to balance the annual national budget;
- That petroleum is an exhaustible resource and as it is used up should be replaced by other types of wealth;
- That all nations of the world, in order to maintain and improve their living standards, must depend almost completely on petroleum as a primary source of generation of energy;
- That any fluctuation in the price of petroleum necessarily affects the progress of the programs of the members, and results in a dislocation detrimental not only to their own economies, but also to those of all consuming nations;

Have decided to adopt the following resolutions:

Resolution I:

Art. 1: That the members can no longer remain indifferent to the attitude adopted up to now by the petroleum companies in effecting price modifications.

Art. 2: That the members will require that the petroleum companies maintain their prices stable and free of any unnecessary fluctuation; that the members will try by all means at their disposal to reestablish current prices at levels prevalent before the reductions; that they will assure that in case some new circumstance arises which, according to the petroleum companies, requires price modifications, said companies should enter into consultations with the member or members affected to fully explain the circumstances.

Art. 3: The members will study and formulate a system to assure the stabilization of prices, among other means, by regulation of production with due attention to the welfare of producing and consuming nations, and to the necessity of assuring a stable income to producing countries, an efficient, economic, and regular supply of this source of energy to consuming nations, and a just return on their capital to those who invest in the petroleum industry.

Art. 4: That if as the result of the application of any unanimous decision of this conference, any direct or indirect sanctions are employed by an interested company against one or more member countries, no other member will accept any offer of advantageous treatment, whether in the form of an increase in exports or an improvement in prices, which may be made by one or more of said companies with the intention of discouraging application of the unanimous decision taken by the conference.

Resolution II:

Art. 1: With a view to making effective the provisions of Resolution I, the conference decides to form a permanent organization called the Organization of Petroleum Exporting Countries, for the purpose of regular consultation among its members with a view to coordinating and unifying the policies of the members, and determining among other matters the attitude which the members should adopt whenever circumstances arise such as those referred to in Art. 2 of Resolution I.

Art. 2: The countries represented in this conference will be charter members of the Organization of Petroleum Exporting Countries.

Art. 3: Any country with substantial net exportation of crude petroleum can become a new member if unanimously accepted by the five original members of the organization.

Art. 4: The principal objective of the organization will be the unification of petroleum policies by member countries and the determination of the best means to safeguard the interests of the member countries individually and collectively.

Art. 5: The organization will hold meetings at least twice a year, and if necessary more frequently, in the capital of one or another of the member countries or in any other place which may be advisable.

Art. 6: A: To organize and administer the work of the organization, a Secretariat will be established for the Organization of Petroleum Exporting Countries.

B: A subcommittee made up of no more than one member for each country will meet in Baghdad not later than Dec. 1, 1960 to elaborate and submit to the next conference a draft of regulations concerning the structure and functions of the Secretariat; to propose the budget of the Secretariat for the first year; and to study and propose the most convenient headquarters for the Secretariat.

Resolution III.

Art. 1: The members participating in this conference will, before Sept. 30, submit the texts of the resolutions to the competent authorities in their respective countries for approval, and as soon as said approval is obtained, will notify the president of the first conference (the Petroleum Minister of the Republic of Iraq.)

Art. 2: The president of the conference, in agreement with the other members, will set the date and place of the next conference.

Indiana Standard Gives Up On Thailand Refinery Deal

Indiana Standard has given up on Thailand as one of its first potential refining areas abroad—while continuing negotiations to buy a refinery in Italy.

In its first official comment on a long-standing and widely discussed proposal, Indiana announced this week that it has withdrawn from negotiations with the Thai government to build a refinery in that southeast Asian country.

"A detailed cost analysis indicated that the project was not economically feasible," an Indiana spokesman said, without giving any further details.

The company's refinery bid, aimed at sewing up a long-term crude outlet in Asia, foundered on changes proposed by each side—including Thailand's insistence that Indiana also undertake exploration, according to industry reports.

Under the original offer, accepted in principle almost a year ago, Indiana proposed building a 25,000 b/d refinery, holding monopoly rights for ten years to supply crude for the refinery and products for the Thai market. After that, it would turn the plant over to the government—but retain exclusive crude-supply rights for another five years—for a total of 15 years.

In subsequent negotiations, Indiana proposed doubling its refinery operating period to 20 years, while still retaining the additional five-year crude-supply rights—for a total of 25 years instead of 15.

This proposal was turned down by the Thai government, which brought in some new proposals of its own. The chief one of these—rejected by Indiana—was that the company get into exploration in Thailand.

The only exploration there now is done by the government, which has some minor production that is refined in a 1,000 b/d state-owned plant, the only one in Thailand.

Industry circles consider it anybody's guess what action may be taken now on other long-standing refinery bids in Thailand—from newcomers, as well as established majors.

Among the newcomers is a Japanese commercial firm, which was given official approval a year ago to build a 5,000 b/d refinery with French financial backing. No action has yet been taken on this plan.

Phillips Petroleum has also been reported involved in another bid put in some time ago by Summit Industrial Corp., of New York.

And the established marketers—Shell, Stanvac, and Caltex—have had a bid in for years for a joint plant.

One complicating factor in the picture is the Thai government's increasing role in marketing, where it is now in direct competition with the established majors.

Three years ago, the companies had agreed to the government's getting into the business for "military purposes." Since then, however, it has been spreading, building bulk stations and service stations.

It is now operating on a fairly large scale, and is underselling the private marketers, who see their own share of a 20,000 b/d market gradually being cut out from under them.

Current reports in Bangkok indicate that the government may be open to new refining proposals, but there is no sign yet that it may be more receptive to the joint-venture bid of the established majors now than it has been in the past.

Esso Has Two More Libya Wells

Esso has two new oil wells in its important Zelten field in Libya, bringing the number of producers in the field to eight.

On drillstem test, the No. 9 Zelten yielded 50 bbl. an hour from 5,711-16 ft. Oil flowed to the surface in 10 minutes.

The No. 10 Zelten yielded 40 to 50 bbl. an hour from 5,734-84 ft. Gas showed at the surface in 7 minutes and oil in 12 minutes.

The No. 9 well is 1.6 mi. east, and the No. 10 1.9 mi. north of the 17,500 b/d discovery well, No. 1 Zelten.

Drilling has been temporarily suspended due to lost circulation, but plans are to resume drilling in a search for other production zones.

Drilling crews are setting casing through the lost-circulation zones.

The oil zones in the two new producers are in Paleocene formations, where production has been found in all but one Zelten well so far. Drilling crews plan to carry the tests through the Cretaceous before completing them. No. 3 Zelten, easternmost of the producers, found oil in the Cretaceous.

No. 9 was last reported down to 5,863 ft., and No. 10 to 7,963 ft.

U.S. Firms Eye Africa Refining

U.S. oil companies in search of new crude outlets abroad are getting in on a concrete bid to build a South African refinery, the first in landlocked Rhodesia.

The deal is being put together "with very strong oil company support" by R. S. Steinbock, of Summit, N.J., who personally holds an option from the government of the Federation of Rhodesia & Nyasaland.

Steinbock told PETROLEUM WEEK that he will head for Salisbury next week to finalize arrangements for a refinery to be completed in three years.

While not yet prepared to reveal the oil companies involved in the plan, Steinbock described them as having "first-class standing," with some refining interests abroad already, but not in Africa.

The project is understood to call for a plant in the 15,000 b/d-20,000 b/d range to encompass local demand, which is currently 12,000 b/d.

The new American bid has already stirred some furor in Rhodesia, where two of the established marketers—Shell and Stanvac—are also considering refinery possibilities.

According to reports from Salisbury, prospects of having to market products from an independent refinery have brought some protest from the local affiliates of majors there, including Caltex, British Petroleum, and Cie. Francaise des Petroles as well as Shell and Stanvac.

The Minister of Commerce & Industry pointed out that there would be guarantees for all sides, since the government could approve only one refinery for the area's limited market.

Sponsors of the refinery, he said, would expect an assured market for their products to justify their capital investment.

And the government, he added, would insist on safeguards to protect its own revenues, prices for the consumer, and investments of marketers already established there.

What's New / AROUND THE WORLD

ARGENTINA—Delta Drilling Co. and two Argentine partners will start well-servicing work next month under two new four-year contracts with YPF, state oil agency.

Out of at least 1,000 YPF wells to be checked in southern Argentina, approximately 1/5 need repairs and reworking, according to Delta, which will supply three pulling units for removal of rods and tubing. Work will be done by its Argentine partners, Contrapet and Quintal Co., which will also hire personnel.

•

SYRIA—A fifth producing well has been brought in at the Karatchok field, discovered in northeast Syria by the Menhall-Atlantic group before their rights were cancelled in 1958. The latest well was reported tested for 3,700-4,100 b/d of oil from 6,134 ft. Drilling to define the field is being continued by Cairo's General Petroleum Authority, with which Atlantic has continued to press its claims for financial compensation.

•

SINGAPORE—The Japanese who are building a 20,000 b/d refinery here have already staked out their first chunk of the local market.

Under a five-year contract just signed, they'll supply 250,000 to 500,000 tons of heavy fuel oil annually to a local power plant starting in 1962. The plant, slated for completion late next year, is being built by the independent Maruzen Oil and Toyo Menka with partial financing from Union Oil of California, an associate of Maruzen's in southeast Asian marketing (PW—Aug.5'60,p11).

•

PERU—Amotape Oil Co., of New York, has completed the 11th oil producer on its coastal lease, where it is producing about 5,000 b/d.

The well initially flowed 19 bbl. of sweet, 39-gravity crude an hour through ½-in. choke from 1,400 ft. Later it was placed on ¼-in. choke, and is now producing about 140 b/d.

•

ITALY—Standard of Indiana has reportedly agreed to pay $15.6-million for the Cremona refinery of the Italian Camangi Group. Apparently, Standard's proposed purchase of the group's marketing outlets is still under discussion.

The company, however, refused comment on the reports, which also claim that capacity of the refinery will be boosted from 26,000 b/d to 40,000 b/d.

•

VENEZUELA—Superior boosted its oil output by nearly 57% in August, while Creole showed the biggest volume gain, of 61,000 b/d.

Total Venezuelan output was up 27,100 b/d, to 2,928,000 b/d. The official government figures, in 000 b/d:

Company*	Aug. '60	8-Mos. Avg. '60	8-Mos. Avg. '59
Creole	1,188.7	1,110.8	1,135.3
Shell	762.0	754.4	839.4
Mene Grande	343.6	403.3	363.3
Mobil	112.6	125.4	110.2
Sun	85.6	79.1	32.2
Richmond	81.3	63.2	50.9
Superior	62.0	33.7	18.4
Texaco	58.3	56.1	54.7
Sinclair	53.5	49.3	48.0
Phillips	53.0	55.7	17.3
San Jacinto	36.9	40.0	30.7
Atlantic	29.5	26.8	25.7
Signal	24.9	26.8	24.5
Mercedes	16.3	16.7	31.8
Caracas	10.0	9.2	0.1
Coro	8.6	8.5	0.1
Talon	1.2	1.0	1.3
Totals	**2,928.0**	**2,860.0**	**2,783.9**

**For joint ventures, total group production is listed under operator's name.*

•

UNITED KINGDOM—The British Labor Party urges restoration of a tax on fuel oil as a main policy item in a fuel and power statement that emphasizes reliance on domestic coal. It also urges the government to discuss voluntary regulation of fuel oil imports with the oil companies.

•

JAPAN—The Japanese now expect to bring in 200,000 tons of crude from North Sumatra during 1961 under their agreement to finance development of former Shell fields held by the Indonesian government's Permina (PW—May13'60,p44).

A program announced in Tokyo last week after three months of study by a 13-man commission just back from Indonesia also calls for completing 38 wells and boosting production from a present 2,000 tons daily to 5,000 tons daily by the end of 1961.

•

QATAR—Shell announced last week that it will abandon its latest offshore wildcat as a dry hole. The No. 1 Hadet Shibeeb was the first test drilled since Shell encountered oil shows this summer in the No. 2 Idd El Sharqi on another structure. It will return to that structure to drill the next test 1½ mi. from No. 2.

•

UNITED KINGDOM—The increasingly difficult straits [illegible] smaller independent crude produ[illegible]s today were cited in recommending British Petroleum's takeover offer to stockholders of Apex (Trinidad) Oilfields. Directors of the London-based company, which has producing and exploration interests in Trinidad and Canada, said it was in their interest to join a large integrated oil group with full marketing, refining, and transport facilities.

•

IRAQ—Italy's state-owned ENI has made its first approach to Iraq, possibly signaling still another move into some aspect of Middle East oil operations.

The Iraq government announced that an ENI invitation has been accepted by the head of Iraq's General Board for Oil Affairs, who will visit Italy with two officials of Iraq's state refinery.

•

PAKISTAN—The Pakistani public has fully subscribed to 40% of the shares in a 35,000 b/d refinery to be built by a group of international oil companies.

Burmah Oil, Caltex, Shell, and Stanvac hold the remaining 60% interest in the installation to be built at Karachi. Kellogg International, London, has been named contractor.

•

SPAIN—A Dow Chemical Co. affiliate has been officially granted the right to build a petrochemical plant at Bilbao, in northern Spain.

Dow-Unquinesa, formed recently after Dow's $9-million purchase of 50% interest in the Spanish chemical firm, Unquinesa, plans completion of the project by 1963. Products are destined mainly for local consumption. Recently, the government turned down separate bids by Esso and Shell for petrochemical rights.

DOW

serves
PETROLEUM
across
the board

Every step of the way from well to finished product, Dow chemicals and chemists serve the petroleum industry. For example: chemicals from Dow help speed drilling operations . . . Dow solvents give an important "assist" to refining . . . and chemists from Dow's petroleum and gas conditioning lab trouble-shoot problems of every sort, from every part of the country. Here's a quick look at some typical cases.

LIGHT-FINGERED SOLVENTS "LIFT" PURE AROMATICS FROM FEED STOCKS

Smooth as a master magician, the Udex® process extracts super-pure aromatic concentrates from complex feed stocks —even at low levels of concentration — thanks to the highly selective Dow glycol solvents on which the process is based.

Units for Udex, using Dow glycols, extract super-pure aromatics from feed stocks.

The explosive growth of the plastics, synthetic fiber and chemical industries after World War II created tremendous demands for benzene, toluene and xylenes. Production then, by conventional methods, was insufficient to satisfy the need. The newly developed Udex process was the answer.

This process, originated by Dow and developed for licensing by Universal Oil Products, is a selective liquid/liquid solvent extraction method for the separation and purification of aromatics from hydrocarbon mixtures.

So selective are the solvents that several aromatics can be extracted simultaneously, at high purity levels. In fact, not only do products of the process exceed established ASTM nitration-grade specifications, but, in the case of xylenes, the resulting purity is often higher than that of the coal-tar standard on which the specifications were originally based!

The extraction solvents are Dow diethylene, diethylene-dipropylene, and triethylene glycols, depending on feed stock composition and the end product desired. Udex glycols are specially prepared, high purity solvents developed by Dow for use in the Udex process. In multi-stage counter-current extraction column, the hydrocarbon contacts the Udex glycol which selectively dissolves the aromatics, then moves on to the separator. Here the aromatics are separated from the glycol, which is returned to the extractor for reuse.

The separated aromatic phase is distilled in a "train" of columns, producing pure benzene, toluene and C_8 aromatics as the overhead products.

•DOWTHERM A

For a heated exchange

For the precise control of heat in refining operations, Dowtherm® A, heat transfer medium, is efficient, non-fouling, thermally stable and easily handled. In the temperature range from 400° to 750° F., this organic medium not only provides fraction-of-a-degree temperature control, but keeps pressures safely low in vapor-phase systems.

Dowtherm A medium reduces carbonization in direct fired heaters. This means less down time of equipment for cleaning . . . increased efficiency and savings on fuel.

Systems for Dowtherm A for liquid or vapor-phase heating can be tailored to meet the exact requirements of any

Dowtherm A medium provides precise heat control, and low pressures for operating safety.

refining operation. Write today for a copy of "Dowtherm For Industrial Process Heating."

•DOW CAUSTIC SODA

You can get it, fast!

Dow's widespread distribution system can put Dow caustic on your doorstep in a hurry! This "roustabout" chemical is used for solubilizing organic clay dispersants, for controlling calcium ion solubility, and for countless other solubilizing and neutralizing jobs. And Dow gives you a choice of: 50% or 73% solutions, or solid, flake, or ground flake forms.

For complete information on the use of caustic, write for a copy of the Dow Caustic Soda Handbook.

Production and gas conditioning, too

PELADOW ***Solution for packing problems***

High density brines of Peladow for annular fillup are economical and easy to handle.

High-density brines made from Peladow® calcium chloride are curing many a completion headache. When these heavy brines of Peladow replace weighted packer muds for annular fillup, the problem of solids precipitation and solidification is eliminated.

Completion costs go down, too, because Peladow calcium chloride pellets are the most concentrated form of active brine material. You save on freight costs at the outset. Add to this the easy handling of Peladow . . . the pellets dissolve quickly in one step . . . and you'll find cost savings to be substantial.

Peladow forms brines of much higher densities than sea water or sodium chloride, and is normally used at densities of up to 11.6 pounds per gallon. There's a wealth of detail in the brochure entitled "Peladow Calcium Chloride For Oil Well Completion Brines." Write for your copy.

GAS CONDITIONING LAB ***Old problem—new method***

One good example of Dow's clinical approach to solving customers' gas processing problems is the recent development of an improved method of analyzing natural gas for carbonyl sulfide (COS) and other troublesome components.

The equipment for this new gas chromatographic technique is designed for use in small laboratories. The method is fast, accurate and convenient, and requires only a moderate investment in equipment. Further, the equipment can be easily operated and maintained by a competent technician. Details of the equipment and method are available on request.

The development of this new method is typical of the assistance which Dow's Gas Conditioning Laboratory provides for gas processors, free of charge. Dow's technical staff and extensive laboratory facilities are available to any company, at any time.

When the problem requires on-the-spot trouble-shooting, Dow technical men work with the processor in his plant.

DOWELL, a division of The Dow Chemical Company, is the largest service company of its kind. Dowell specializes in providing chemicals and services for the oil industry . . . such as the acidizing of wells for greater flow; "mud acid" treating to open clay-clogged wells; shutting off oil well waters and consolidating sands; electrical charting of deep well zones; and scores of other services, many pioneered and developed by Dowell.

• IN EVERY SEGMENT of the petroleum industry, Dow men and materials are hard at work. For more information on how Dow can help you, and to receive copies of the booklets described above, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Dept. 509LR9-30.

See "The Dow Hour of Great Mysteries" on TV.

THE DOW CHEMICAL COMPANY
Midland, Michigan

DOW

Aromatics Stage A Strong Comeback

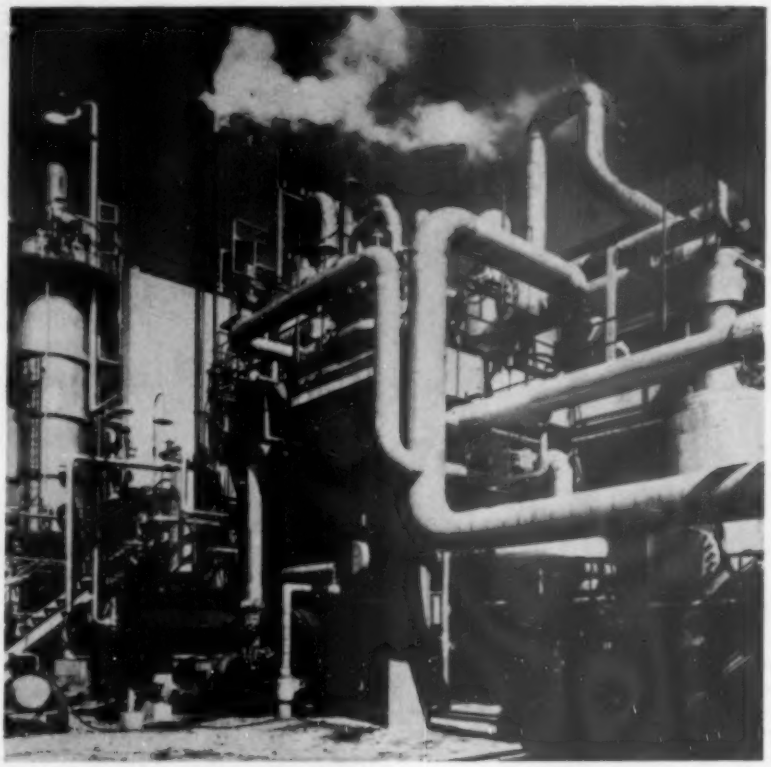
Aromatic hydrocarbons are enjoying an outstanding popularity today as raw materials for a huge variety of chemicals.

This "renaissance of the aromatics" was discussed during this week's symposium on petrochemicals at the Tulsa meeting of the American Institute of Chemical Engineers by Ralph Landau, executive vice-president of Scientific Design Co., Inc., designers and constructors of chemical processing plants in the U.S. and abroad.

Actually, when the chemical industry started abroad, Landau reminded the meeting, it was almost exclusively an "aromatics" industry: the aromatics were then derivatives of coal tar, a byproduct of the steel industry.

The rapid development of the petroleum industry between the two World Wars made available a huge quantity of low-cost aliphatic hydrocarbons, and the chemical technologists shifted their interest from coal to petroleum as a source for their raw materials. This was the beginning of the U.S. chemical industry.

By the end of World War II, the petrochemical industry had become so big that aliphatics by far outranked aromatics (still primarily coal-derived) as building blocks for American chemical manufacturers. The development of synthetic rubber and plastic played an important part in that new industry.



MALEIC ANHYDRIDE UNIT, with 20-million lb. annual capacity, was put on stream recently at the Bridgeville (Pa.) plant of American Cyanamid Co. Benzene is the raw material. The unit was designed and built by Scientific Design Co.

The new activity in the development of aromatics is closely linked with the development of catalytic reforming, Landau said.

Catalytic reforming, which grew by leaps and bounds since World War II owing to the demand for more high-quality gasoline, produces enormous quantities of aromatics. Until recently these were retained in the blends for the preparation of high-octane motor fuel, or separated and sold as chemical solvents.

The petroleum industry was quick in recognizing the profit that could be derived from the upgrading of some of these aromatics into raw materials for the petrochemical industry.

There are approximately 30-billion lb. of xylenes and 25-billion lb. of toluene available out of refinery streams every year. The amount of benzene is considerably lower.

Some of these aromatics must remain in the gasoline pool, of course. But a substantial proportion can be extracted from the blends, and upgraded, without jeopardizing in any way the quality of the gasoline produced.

There is an enormous demand for benzene today, to be used for further chemical conversion.

Over 60% of the benzene produced in this country comes from petroleum, while up to World War II benzene was 100% a coal derivative.

But because of the great need for more benzene, processes that convert toluene into benzene are becoming popular; for example the Hydeal process, developed jointly by Universal Oil Products Co. and Ashland Oil & Refining Co. (PW—Oct.16'59,p50).

Impressive new technologies for the conversion of benzene into petrochemical intermediates are being developed at a fast rate.

Among those, Landau cited:

- The UOP Alkar process for the production of alkylated aromatics, principally ethylbenzene for making styrene.
- The SD process for making phenol;
- The SD process for the manufacture of cyclohexanone or adipic acid from cyclohexane, by direct air oxidation.
- The Du Pont process for making cyclohexanone from nitrated cyclohexane.

Cyclohexanone is used to produce caprolactam, one of the principal raw materials for the making of Nylon 6, which is growing in importance (PW—Sep.23'60,p38).

Toluene, which used to be considered important only as a solvent and for the making of TNT, is now taking its place among the essential petrochemical raw materials, Landau said.

An increasing proportion of toluene will probably be converted into benzene in the months to come.

It can also be converted into phe-

First Hydeal Unit Makes Benzene from Toluene

An unusual process in an unusual plant will go on stream soon at the Silsbee (Tex.) plant of South Hampton Co. It's the first commercial installation of Universal Products Co.'s Hydeal process for making benzene out of toluene (PW—Oct.16'59,p50).

Don't look in the refinery or natural gas directories for South Hampton Co., you won't find it there. Yet it encompasses the functions of both. The Silsbee plant was built in 1956 by John Breaker, of Houston, next door to a natural gas cycling plant, to process its low-octane debutanized natural gas condensate—about 700 b/d of it.

In 1956 South Hampton built a Platformer, in 1957 a de-isopentanizer, and in 1959 a Penex unit, to make high-octane motor fuel from purchased cycling-plant gasoline.

Tetraethyl lead is added.

All these units were licensed by UOP. Breaker's men did their own construction.

The plant's output of motor fuel came up to about 1,400 b/d.

South Hampton is completely automated and runs practically by itself. It has an elaborate system of alarms and shutdowns.

Now the plant has installed three more units, working in conjunction, for the production of aromatics.

- A 350 b/d Unifining unit for preliminary treatment of certain purchased stocks high in unsaturates. It uses hydrogen produced in the Platformer.
- A 680 b/d Udex unit to extract benzene, toluene, and xylenes from the reformer output. Only benzene and toluene will be extracted for the time being.
- A 250 b/d Hydeal unit, which will take the toluene from the Udex and transform it into benzene.

There is a great demand for benzene at present (page 38).

nol, by a process developed by Dow Chemical Co.

And in Italy, SNIA Viscosa has a new process that makes caprolactam from toluene.

A great variety of new techniques are being developed for the conversion of xylenes into phthalic intermediates.

These products include isophthalic and terephthalic acids, and phthalic anhydride. They are assuming a growing importance today, partly because of the development of new applications for polyesters, for which the phthalic intermediates are the chief raw materials.

Isophthalic acid is also important for the making of alkyd resins for paints and coatings, as a base for glass fiber-reinforced laminates, and as a plasticizer for vinyl resins.

The new manufacturing techniques that convert xylenes into phthalic compounds are mostly oxidation processes.

Among these processes, Landau indicated:

- The air oxidation of the mixture of all three xylenes (ortho, meta, and para). This liquid-phase process was developed by SD's affiliate, Mid-Century Corp., and sold to Indiana Standard.
- The sulfur oxidation of metaxylene to make isophthalic acid, a Standard Oil Co. of California (Oronite) process.
- The Imhausen process to make dimethyl terephthalate from paraxylene, a process now licensed by Hercules Powder Co. from Calfiornia.
- The separation of ethylbenzene from xylene mixtures, by Cosden Petroleum Co., to make styrene.
- The SD vapor-phase process for production of phthalic anhydride from orthoxylene by air oxidation. One plant is at present being constructed for such an operation, but its identity has not yet been revealed.

In addition to benzene, toluene, and xylenes, petrochemists today devote a good deal of their attention to the chemistry of the higher-molecular-weight aromatics.

For example, Sinclair Petrochemicals, Inc., has expressed its interest in the eventual conversion of mesitylene (one of the C_9's into trimesic acid).

And Standard Oil Co. (Ind.) has selected Scientific Design for the construction at Joliet, Ill., of the first plant for commercial production of trimellitic anhydride from pseudocumene (another C_9 with the CH_3 groups linked at different points in the molecule).

Last year, Landau indicated, about 500-million lb. of naphthalene were consumed, all from coal tar origin. At present, there are 300-million lb. of naphthalene producing capacity under construction in petrochemical plants.

In the three naphthalene plants under construction for oil companies, C_{11} compounds are de-alkylated to C_{10} compounds to make naphthalene. UOP's Hydeal process is one of the processes performing that conversion. A similar process was developed by Union Oil Co. of California.

Sohio Acrylonitrile Plant Introduces Novel Process

The first plant for the commercial production of acrylonitrile by the propylene-ammonia process went on stream recently at the Lima (Ohio) refinery of Standard Oil Co. (Ohio).

It is a radical departure from other acrylonitrile plants, both here and in Europe. Its big feature is that it does not—like most others—make use of hydrogen cyanide, a product often impractical, and always hazardous.

Sohio's engineer Franklin Veztch described the new venture this week at the 43rd National Meeting of the American Institute of Chemical Engineers, in Tulsa.

The process makes acrylonitrile by a one-step, vapor-phase reaction of commercial ammonia, refinery propylene, and air, over a catalyst.

The reaction is performed at relatively low-pressure—below 50 psi.—and low temperature—around 900F. It requires only a few seconds of "residence time" in the reactor.

An important point, Veztch indicated, is that neither the ammonia nor the propylene need to be very pure. A fertilizer-grade of ammonia is satisfactory, and propylene concentration can be as low as 40%.

The separation and purification of

the acrylonitrile are relatively simple with this process, Sohio says.

Only conventional distillation apparatus is required, and there are no troublesome acetylenic compounds present in the mixture, such as divinyl acetylene or cyanobutadiene.

One byproduct, acetonitrile, is a useful petrochemical in its own right. Sohio plans to recover it and put it on the market; it is a powerful resin solvent.

Before building the commercial-size plant, Sohio experimented for many months with a laboratory unit, then an "advance model."

At its research center in Cleveland, Sohio tested the new process. The separation technique, in particular, was perfected there: Multiplate, glass Oldershaw distillation columns were used in this preliminary study. "Fiber grade" acrylonitrile was produced in the pilot unit, and tested in plants of eventual consumers.

Sohio intends to commercialize its new process in the U.S. and abroad.

The principal uses for acrylonitrile are for synthetic acrylic fibers, for nitrile rubber, and for plastics. In these three applications, U.S. consumption has grown from 178-million lb. in 1958 to 278-million lb. estimated for 1960.

"A consumption of over 400-million lb. is expected for 1965," Veztch said.

There is no capacity shortage for acrylonitrile at present, Veztch added, but the consumption of this product is growing so rapidly that present estimates may prove too conservative.

Refiners Are Using Molecular Sieves for Sweetening LPG

Use of molecular sieves for the sweetening of liquid hydrocarbons, particularly LPG, is becoming increasingly popular in the refining as well as the natural gas industry, according to Linde Co., division of Union Carbide Corp.

Linde engineers described the new, dry, solid-adsorbent process at the national meeting of the American Institute of Chemical Engineers, in Tulsa this week.

The process offers several advantages over conventional sweetening processes, they said.

The most widely used processes are based on caustic scrubbing, and have definite drawbacks. These are: for the nonregenerative process, a high consumption of caustic and a caustic-disposal problem; for the regenerative process, an air-pollution problem.

In both cases, the hydrocarbons must be dried in a separate, secondary step. These drawbacks, says Linde, are eliminated with molecular sieves.

Molecular sieves are synthetic crystalline adsorbers, adaptable to a regenerative type of operation.

They are zeolites of alumina and silica, with a few sodium ions present to maintain electrical neutrality in the crystals. The fine, white, powdery sieves are bonded, extruded, and formed into pellets.

The structure of molecular sieves (PW—Jun.26'59,p34) is actually that of minute cages, each with openings of a very definite size. When a mixture of liquids or gases passes through the sieves, the cages adsorb, or trap, products that have molecules of a size smaller than their openings, but do not trap products with molecules too large to enter.

Later, under the action of heat, the adsorbed products are released, and the sieves are ready for a new purification or separation cycle.

Linde told PETROLEUM WEEK that 14 plants for hydrocarbon sweetening are presently installed.

Other plants for purifying, sweetening, or dehydrating hydrocarbons, in refineries or in natural gas processing plants have either been put in operation or are in the planning stages.

The original installation for the sweetening of LPG was the Eunice (La.) plant of Union-Texas Natural Gas Co.

The unusual feature of the sweetening process is that the molecular sieves do not act by molecular screening in this case, but by selective adsorption.

The type 13X molecular sieves used for sweetening have openings of 9 to 10 angstrom units in diameter. Hydrogen sulfide and mercaptans, the sulfur products that must be removed, have molecules small enough to enter these sieves—but so have propane, and several other hydrocarbons, which are to be purified. The separation of the sulfur compounds thus depends on "selective adsorption," Linde explained.

The key to the selective adsorption process is the fact that sulfur compounds are much more strongly adsorbed than hydrocarbons in the sieves. Thus, they are adsorbed first, Linde said.

For every type of hydrocarbon, and for every concentration of hydrogen sulfide in the mixture, there is one "equilibrium loading" point, at which the sieves have adsorbed all the sulfur compounds that they can take, without adsorbing any appreciable quantity of hydrocarbons.

The presence of carbon dioxide in the mixture reduces slightly the equilibrium loading. So does the presence of water. Water is very strongly adsorbed by molecular sieves, and will be adsorbed entirely in a short zone at the inlet of the bed of sieves.

Sweetening by means of molecular sieves is accomplished in a four-step

BP Ready to Supply Canadian Market

British Petroleum Co.'s first refinery in North America is now fully on stream at Ville D'Anjou, near Montreal. Products from the 25,000 b/d plant are being distributed by road, rail, river, and the Trans-Northern pipeline to markets in Quebec and Ontario. Regular and premium gasoline are the principal products.

cycle. The first step accomplishes the sweetening; the other three regenerate the bed.

(1) Adsorption. The sour liquid flows downward through the bed of molecular sieves. The pressure is kept high enough to avoid the formation of vapor pockets.

This flow is stopped before undesirable sulfur compounds appear in the effluent. (This is before the theoretical equilibrium point of the entire bed is reached.)

(2) Liquid Removal and Depressurization. The pressure is then reduced to 60 to 120 psi. In some cases, high-pressure gas is introduced to purge the bed of any liquid. This step lasts about 15 minutes.

(3) Desorption. The sulfur compounds are removed by a flow of hot gas—400F to 550F—that must be dry, sweet, and oxygen-free. Demethanizer overhead gas, Linde said, is a particularly suitable gas for this regeneration step, and about 20 to 25 moles of gas are required per 100 lb. of molecular sieves.

The vapor produced during steps 2 and 3 can be sent to a condenser, or recycled, or used as fuel.

(4) Cooling. The bed is cooled, after desorption, by letting the sour liquid feed go through slowly—about 4 gal. per min. per sq. ft. of bed cross-sectional area. About 20 to 30 gal. are normally required to cool 100 lb. of molecular sieves. The vapors produced during this step—generally sweet—are disposed of in the same manner as the depressurization vapors.

The installations generally consist of two beds, one of which is in the adsorption phase while the other is being regenerated.

The size of the adsorber beds, Linde said, should be calculated so that the time needed for the adsorption step corresponds to the time necessary for the other three steps of a full cycle. Most frequent practice consists of 8 hours of adsorption and 8 hours of regeneration.

The operation of molecular-sieve sweetening units is not costly, according to Linde.

The life of a bed of sieves is not yet known, because no installation has been in operation long enough to call for a replacement. But on the basis of an inspection after 18 months of continuous operation, without sieve replacement, a considerably longer life can be expected, Linde says.

The initial cost of an installation for units containing 2,000 lb. of molecular sieves per bed—two beds are required—is around $20,000, Linde indicates. This includes the cost of the sieves.

What's New / IN PROCESSING

SunOlin Chemical Co. will produce 225-million lb. of ethylene and 55-million lb. of ethylene oxide per year at a plant at Marcus Hook, Pa.

The facility will use an ethylene process designed by Lummus Co., and Shell Development Co.'s ethylene oxide process. Lummus is doing the engineering and construction; completion is slated for late 1961.

The plant will be located adjacent to Sun Oil Co.'s Marcus Hook refinery, which will supply the raw materials.

A multiple pipeline crossing is also being built beneath the Delaware river from the plant site to New Jersey. It will be used to deliver petrochemical raw materials and intermediates to companies in that area.

•

Chromium-molybdenum alloy steel tubing from the distillation still of a West Coast refinery has been found to be in perfect condition after 21 years of continuous service. More than 40-million bbl. of crude had passed through each tube.

The tubes were examined and tested at the Beaver Falls (Pa.) laboratories of Babcock & Wilcox Co., their manufacturer. B&W says that they still retain physical properties sufficient to meet the specifications for new tubes. Metallographic examination showed that they had been submitted to skin temperatures of 700F to 750F, but that the temperature had gone much higher for brief periods.

•

Dresser Industries, Inc., has purchased Podbielniak, Inc., Chicago, manufacturer of centrifugal solvent extractors and distillation units, as part of its diversification program.

Podbielniak's liquid-liquid contactors and clarifiers are used in phenol and furfural refining of lubes and gas oils; separation of monomer and polymer by solvent extraction; acid treating; and many other processes.

Some pilot-tested applications of the company's extractors are liquid sulfur dioxide extraction of crude kerosine and light oil, and recovery of naphthenic acid from crude oil.

As part of the Dresser Industries, Podbielniak will continue to expand its line of equipment, including laboratory fractional distillation apparatus, and will utilize Dresser's worldwide sales organization.

•

A low-cost general purpose digital computer that provides precise control of ingredient blending operations has been developed by Bendix Corp.

The company says the Bendix G-15 can replace the specially designed computer ordinarily needed for process control. Blending is better controlled, Bendix adds, with the new computer than with electro-mechanical or analog techniques.

The system achieves exact control of the ingredient stream, blend composition, and final product blend through the use of high-accuracy digital flow meters and fast piston valves containing one moving part. It also automatically tallies and remembers the true flow of all ingredients used.

The system was demonstrated last week at the Instrument Society of America exhibition in New York.

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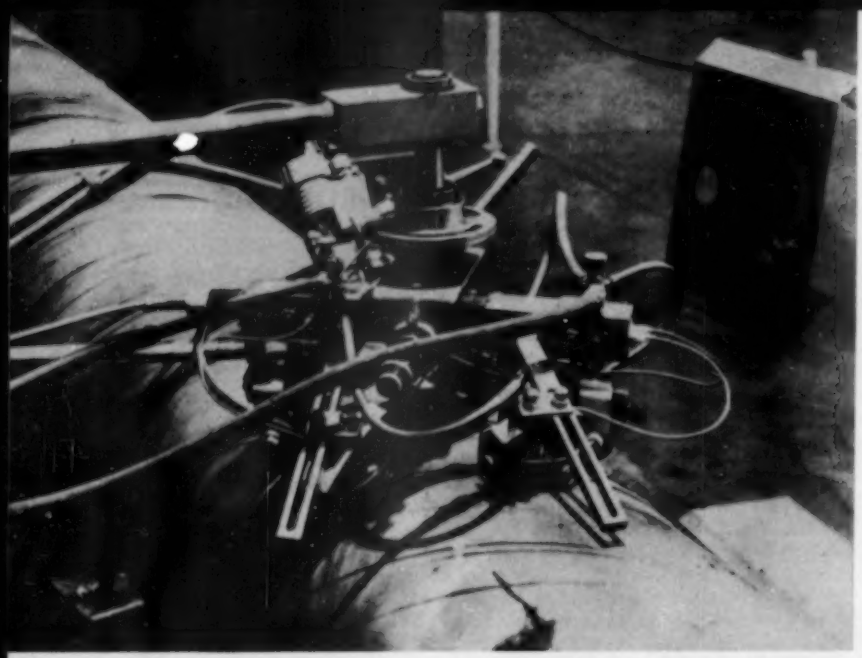

TESTING HEADS, set around seam, generate waves which record locations of flaws in . . .

Sonic Weld Inspection Developed for Line Pipe

An ultrasonic weld-testing instrument has been developed by Driam Corp. for use with its own spiral-welded pipe or with butt-welded pipe (PW—Feb.12'60,p45).

Driam makes a portable machine, called a Driam Pipe Mill, that fabricates continuous lengths of pipe in diameters of from ½ in. to 120 in.

The company says that both its mill and ultrasonic testing system are in use in Europe. It adds that an unnamed U.S. pipe maker will begin using both units this year in the manufacture of pipe in diameters of 10 in. to 28 in.

Basic component of the device is a set of four sonic heads that beam sensitive sound waves at the weld area and surrounding pipe area and then pick up echos if defects are encountered.

The sound waves are produced by the heads through the conversion of electrical pulses, which are generated by a transmitter.

Flaws registered by the waves include pores, longitudinal cracks, transverse cracks, notches, slag streaks, bond failures, and root defects.

These are all defects that "impair quality," according to Driam.

The reason that four heads are used to transmit waves is to afford coverage of both the weld and surrounding pipe.

Two of the heads are mounted in staggered positions on opposite sides of the seam. Waves from these heads search out defects in the weld itself, such as pores, lengthwise cracks, and slag inclusions.

The other two heads are set on the pipe itself alongside the weld to detect any transverse cracks, which can't be reached by waves from the staggered heads.

Maximum allowable temperature of the testing heads is 180F.

Both the transmitted sound wave and the echo—or reflected wave—pass through an amplifier and cathode ray tube, which record them visually on a luminous screen.

The visual recording is in the form of peaks from a base line on the screen.

The distance from the peak of the transmitted pulse to the peak of the defect echo is proportional to the distance from testing head to defect, Driam says.

The height of the peak representing the flaw is also significant: The bigger the defect, the higher will be the amplitude of the echo, and the higher the peak.

When a sound wave is reflected back, a spray gun is automatically triggered and paint is jetted on the flaw.

At the same time, an audible signal sounds.

In the event that the flaw can't be seen with the naked eye, the testing device can be turned off and the painted area can be further inspected by X-ray.

The device is suitable for a wide variety of sizes of spiral-weld pipe.

Pipe of diameters of from 10 in. to 72 in. can be tested. Allowable wall thicknesses range from 3/16 in. to ⅝ in.

Driam says that its tester is capable of testing up to 26 ft. of weld per minute.

The procedure for inspecting an ordinary butt weld is exactly the same as the one used for the spiral weld, according to Driam.

Actually, both types of seams are butt welds in as much as they are made by bringing the edges—or butts—of a strip of metal together and fusing them.

The difference between the two kinds of pipes lies in their mode of construction. Spiral-welded pipe is, as its name states, formed as a spiral. What is referred to as butt-welded pipe is made by taking a flat piece of metal and forming it into a conventional cylinder.

Butt-welded pipe is vastly more common than spiral-welded pipe.

Driam points out that it can furnish ultrasonic testing equipment either for manually operated pipe mills or automatically operated plants.

What's New

The prospect of a pipeline system to export gas byproducts from Canada to the U.S. grew brighter last week amid stiffening competition among companies to participate in the project.

Alberta's Oil & Gas Conservation Board announced it would open hearings Tuesday on a revised application of Foothills Pipe Lines, Ltd., for authority to build a transmission line from a gathering system proposed by Westalta Products Pipe Line, Ltd., to Chicago (PW—Jun.10'60,p44).

This latest line would start at the Alberta-Saskatchewan border and enter the U.S. at Montana, whereas previously it had been proposed to cross Saskatchewan before entry.

LPG TANK TRUCK of 10,000-gal. capacity is the first of six to be built under . . .

Tuloma's 'Jumboizing' Program

In another move to "jumboize" its transportation facilities, Tuloma Gas Products Co. has put in operation the first of six 10,000-gal. LP-Gas tank trucks.

Capacities of most tank trucks range betwen 6,000 gal. and 8,000 gal.

During the summer, the company started using 30,000-gal. rail tank cars —the largest ever built (PW—July15 '60,p54).

Says a company spokesman, "We feel that it is logical to use one piece of equipment to do the work of two."

Length of the super-sized tank is 45 ft. and the diameter is 80 in.

To keep the over-all length of the truck within a 60-ft. road limit, a special shorter cab unit was developed, which carries the motor directly beneath the driver and above the axle.

The truck's pumping system will unload the tank in about 35 minutes—less time than is required by pumps on most smaller trucks.

Unloading capacity of the 4-in. centrifugal pump is more than 300 gal. per minute.

The pump is powered by the truck's battery.

The pumping system has several special safety features. When the driver depresses the control switch to open the pump's valve, the switch also automatically locks the truck's brakes.

IN TRANSPORTATION

Also, the second route would lower cost of the over-all project by nearly $25-million.

Last week the board also made public a letter from Mid-America Pipe Line Co. seeking support for its plan to build a line to transport LPG from Superior, Wis., to Chicago.

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The Italian tanker, Agip Gela, was reported chartered to Russia last week to carry 23,000 tons of Black Sea oil to Japan (PW—Aug.12'60, p50).

One tanker-fleet spokesman commented that the charter "is a defeat for the Esso boycott, particularly in view of the fact that the rate was Scale—39%—which is at or below the current market."

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LP-Gas shippers say they will strongly oppose a new higher scale of rates proposed for in-transit storage.

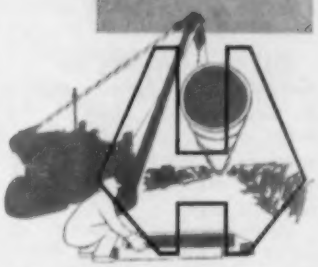
Harry A. Busten, general traffic manager, Warren Petroleum Corp., last week told a meeting of the LP-Gas Assn. that the higher scale would boost his company's in-transit costs 33% in the Southeast and 25% in the Southwest.

•

Revenues of 69 major oil pipeline companies totaled $176,169,831 last quarter—an increase of 1.3% over the second quarter of 1959, according to ICC.

While total revenues were up, however, those of 30 companies showed a drop from last year.

Wherever Pipeline Construction is Required . . .



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All Laws Aren't Made by Congress

Laws affecting oil marketing are being written in Washington—and oil marketers are not even aware of them, according to Donald C. O'Hara, general counsel for the National Petroleum Assn.

The laws affecting marketing are not being written in Congress; they are being set down by the regulatory agencies, O'Hara told PETROLEUM WEEK last week.

Oil marketers who are satisfied merely to see adverse bills stalled in Congress are blind to the real force in the government: the indirect pressure on the Federal Trade Commission and other executive units, O'Hara says.

As an example, he cites the divorcement bills introduced by Rep. James Roosevelt (D., Calif.). One of these bills would prohibit integrated oil companies from deriving any commission from TBA sales at their service stations.

This bill, along with other proposed marketing legislation, did not arouse any interest in Congress this year.

But even so, O'Hara warns that the Roosevelt Bill may indeed become law (as far as tires are concerned), without any action by Congress. If the full FTC agrees with its trial examiner, any company that receives a commission on the sales of tires through its service stations will be violating the Federal Trade Commission Act.

This would have the same effect as passage of a law divorcing integrated oil companies from tire sales at service stations, he says.

Even if Congressional committees do not generate legislation, their influence can turn the proposal of a pressure group into law—indirectly.

A striking example of this is seen in the FTC case involving Sun Oil Co. at Jacksonville, Fla. In this case, FTC has tended to consider local price discounts to dealers (given so they may compete with private branders) as illegal, O'Hara says.

This is a reversal of FTC's original position—which was to interpret such discounts as legal. Not until Sen. Hubert Humphrey (D., Minn.) pressured FTC at a hearing in February, 1956, did the agency change its mind.

O'Hara was present at that hearing, and he concludes that "the law was changed that day."

A similar example was seen this year in the action of the Supreme Court in the Anheuser Busch case (PW—Jul.1'60,p36). In the case, O'Hara says, the court supported FTC's position of opposing local price reductions that are not carried out everywhere.

This decision has the same effect as if Rep. Wright Patman's bill prohibiting below-cost sales (H.R. 10235) had been passed, O'Hara maintains. Patman's bill, which was introduced this year, would prohibit a marketer from setting prices in one area lower than those he charges elsewhere (under certain circumstances).

One factor that may force the executive branch of the government to follow the lead of Congress is the rivalry that exists between the two branches, O'Hara told the Ohio Petroleum Marketers Assn. in Cincinnati last week.

The Justice Dept. may begin a case that it feels is unwarranted, for example, just because "it does not wish to take the political risk that the other party might turn up something."

"Then," O'Hara told OPMA, "when the excitement of the investigation dies down, the department is stuck with a case that it does not dare dismiss or compromise for fear of criticism by Congress."

He cited the recent Tulsa antitrust case against major oil companies as an example (PW—Feb.19'60,p17).

The effect of this indirect pressure on the executive agencies will have considerable impact upon petroleum marketing, O'Hara told the association.

In fact, oil companies are already modifying their pricing policies, he said, "to forestall any legal attack on their prices."

He mentioned two such modifications in pricing policy: the posting of prices only at bulk plants for a given area, and the use of uniform wide-area pricing.

Standard Oil Co. (Ind.) has introduced the bulk plant system, while Mobil Oil Co. is experimenting with wide-area pricing (PW—Sep.23'60, p116).

Several bills opposed by the oil industry will probably be revived in Congress next year, according to O'Hara. Among them:

- The minimum wage bill, which would have raised the minimum rate to as high as $1.25, compared to the present $1.00, and would have extended the law's coverage to service station employees.
- Another increase in the federal gasoline tax, because of the "rising cost of the highway program."
- A renewed effort on the part of the coal industry to get a study of a "national fuels policy."
- Another effort to weaken the boycott restrictions of the Landrum-Griffin Bill. "Any weakening of this law, which prevents unions from interfering with the loading and unloading of trucks, could have serious repercussion in all of the distributive trades," O'Hara said.

O'Hara also predicted that a "determined effort to get a fair trade bill" could be anticipated. He observed that the retail druggists and other groups that favor more restrictive fair trade laws will have "an uphill fight." But, he added, "we cannot overlook the fact that they have succeeded in getting two fair trade bills through Congress in the past" (the Miller-Tydings Act and the McGuire Act).

Novel Dealer Sideline: Insurance

Some Mobil Oil Co. dealers are selling insurance at their stations in the Dallas-Ft. Worth area.

At 105 outlets, the dealers are taking part in an experiment by offering their customers an opportunity to insure their lives while they have their tanks filled. The insurance is good for only one week, however.

The move is the second recent diversification of oil marketers into the field of insurance promotion. Last summer, Standard Oil Co. (Ind.) began making available to its credit-card customers the opportunity to acquire accident insurance.

While this move is directed by Indiana Standard, the Dallas-Ft. Worth test does not involve Mobil Oil Co. directly.

The heart of the plan is a portable, lightweight vending machine (hardly larger than a book) that can be easily handed to a motorist.

To facilitate the operation even further, hurried dealers may simply

hand motorists a printed card that explains the insurance offer.

Any motorist who expresses a desire to acquire insurance while he's at the station, merely has to insert the required number of quarters into the machine, and sign his name on an application that is dispensed by the machine.

The maximum coverage available through the machine is a $2,000 life insurance policy, which carries a $5,000 accidental death benefit. This costs four quarters.

World Land Corp., of Denver, the originator of the novel insurance scheme, plans to grant franchises to individual service station operators in other areas.

William R. Cunningham, president of World Land, says he believes the insurance will be particularly appealing to highway travelers, as well as to people who are normally "uninsurable." Eventually, he says, "the benefits provided may be liberalized."

Cunningham also sees benefits for the dealer in the scheme. The portable insurance vendor gives the dealer a chance to generate additional sideline business, even from the 83% of the motorists who, he says, never step out of their cars at service stations.

The cost to the dealer is $125 for franchise rights to the program.

Moore Business Forms, Inc. of Emeryville, Calif., is the manufacturer of the machine, and American Empire Insurance Co., of Austin, Tex., underwrites the insurance.

What's New / IN MARKETING

Enco Replacing Carter

Humble Oil & Refining Co. has taken another step toward brand unity. It is replacing Carter signs (which identify its Carter division stations) with Enco signs.

Thus far, the move is confined to stations located in eastern Washington and western Montana. The largest concentration of Enco signs is in Spokane, Wash.

The Enco name (a contraction of energy company) first appeared in Seattle, Wash., and Portland, Ore., in June. Since then it has been used in other Carter stations in the Far West, but, until this month, it appeared only on the pumps. The new brand name was intended to signify an improvement in the quality of Carter's gasolines.

Earlier, Humble revealed that it planned to introduce Enco in Ohio, where it will soon begin retail marketing.

Another change is taking place in the East. In Humble's Esso division, station facades are being adorned with the word "Humble," spelled out in bold, red letters. This change is planned to take place throughout Humble's nationwide marketing area.

Mobil Oil Co., has retained Theodore Levitt, the instructor at the Harvard Graduate School of Business who has gained wide recognition as a critic and analyst of oil marketing.

Levitt, who will speak in November at API's annual meeting, recently drew ominous parallels between the buggy whip, the corner grocery store, the railroad industry, and the oil industry. His remarks appeared in the Harvard Business Review.

At Mobil, Levitt will assist in modifying over-all policy and marketing strategy. Five other oil companies tried to get his services.

•

Lion Oil Co., a division of Monsanto Chemical Co., has introduced a new training program: Four service representatives will tour the company's nine-state market, counseling dealers.

The four men recently completed a six-week instructor training course conducted at Lion's new service station training center.

•

Powerine Oil Co., Los Angeles, has joined Standard Oil Co. of California and Mobil Oil Co. in selling gasoline with tetramethyl lead (TML) additive.

A spokesman says the company enjoys enhanced prestige by being able to promote a gasoline that offers the same additive that major marketers use.

•

A research team at Michigan State University has begun a year-long study of oil smoke.

Charles Pesterfield, professor of mechanical engineering and director of the project, says he hopes to find out how much smoke emanates from oil burning equipment, and also to determine what the smoke consists of. Little is known about this subject, he says.

The lack of specific data on this subject has seriously handicapped the oil heating industry in the past in the presentation of cases before public bodies in defense of the use of oil burning equipment, according to Pesterfield.

The project is sponsored by the Oil Heat Institute of America.

Cities Service Opens 'Ultramodern' Outlet

Cities Service Oil Co. (Pa.) opened this service station last week at the new Prince George shopping center, in Washington, D. C. In keeping with the modern tone of its surroundings, the station has several unusual features: The salesroom is fully air-conditioned, and provides self-service refreshments; motorists at the pump island and in the lounge are serenaded with hi-fi music.

R. C. Sauer

E. B. McConnell

RICHARD C. SAUER is the new executive vice-president of Standard Oil Co. (Ohio), responsible for supply, refining, transportation, and marketing, and **ELLIOTT B. McCONNELL**, who is a senior vice-president, is now responsible for the research department and efforts to develop and utilize scientific management techniques. Both men are also Sohio directors. Sauer has been senior vice-president in charge of supply and transportation, and McConnell was formerly in charge of Sohio's manufacturing operations. **Samuel H. Elliott** continues as senior vice-president in charge of exploration and production, and **Edward F. Morrill** continues as vice-president in charge of chemical manufacturing and marketing.

RONALD R. McNAUGHTON, Consolidated Mining & Smelting Co. of Canada, Ltd., has been elected president for 1961 of the American Institute of Mining, Metallurgical, & Petroleum Engineers. He will take office in February. At that time, **LLOYD E. ELKINS**, Pan American Petroleum Corp., will become president-elect, pointing toward his election as president for 1962. McNaughton succeeds **Dr. Joseph L. Gillson**, who was formerly chief geologist for E. I. du Pont de Nemours & Co., Wilmington, Del. Among the AIME vice-presidents for 1961 are **John S. Bell**, Humble Oil & Refining Co., Houston, former president of the Society of Petroleum Engineers of AIME, and **Wayne E. Glenn**, Continental Oil Co., Houston, current president of the Society of Petroleum Engineers.

JOHN M. SPRAGUE returns to Humble Oil & Refining Co. as its Washington (D.C.) representative, after serving as Deputy Assistant Secretary of Defense. Sprague, who spent two years with the Dept. of Defense, is a former controller, area manager, and regional vice-president of Humble's Carter division. **William R. Veal** has been named attorney for Humble's Washington office. He has been Carter's area attorney in Shreveport, La., and has spent the last year in the Washington office of Standard Oil Co. (N.J.), Humble's parent.

Z. D. GRISSOM moves up to exploration superintendent for Sinclair Oil & Gas Co.'s South Texas-Houston division, and **R. R. Gahring** succeeds him as district manager for Sinclair in Alaska. Gahring was formerly senior geologist at Anchorage. In his new position, Grissom succeeds **S. K. Van Steenbergh**, who is moving from Houston to Tulsa as exploration superintendent for the Central-Tulsa division.

EDWARD C. MITCHELL has been appointed assistant to the vice-president, foreign operations department (Eastern Hemisphere), for Texaco Inc., in New York. Mitchell, who joined Texaco in 1935, has had assignments in the treasury and foreign sales departments. Since January, he has been assistant general sales manager for Texaco's central region, in Chicago.

A. L. Vaughan

W. B. Haas

A. L. VAUGHAN, vice-president of Northern Natural Gas Co., Omaha, Neb., is head of its newly created operating division, and **W. B. HAAS**, also a vice-president, is head of the new construction and engineering division. Six area offices have been created under the operating division for closer control of the company's pipeline system. Managers of the new area offices are: **David P. Corkill**, Minneapolis; **Evan M. Griffiths**, Des Moines; **Ross N. Cox**, Lincoln, Neb.; **Otto V. Barbee**, Great Bend, Kan.; **Carl W. Ikard**, Liberal, Kan.; and **Jack W. Seaman**, Midland, Tex. **Glen Grove**, who will report to Vaughan, is manager of administrative control, responsible for coordinating the activities of the six area offices.

GEORGE L. SCOTT moves to London as manager of employee relations and organization planning for Gulf European Co., a Gulf Oil Corp. subsidiary. Scott has been coordinator of organization planning for the parent company in Pittsburgh since 1959, and before that was concerned with personnel, employee training, and allied functions in the parent company's employee relations department.

WILLIAM H. KREITZER has been appointed operating manager of Mobil Oil Co.'s five-state Southwest marketing division, in Dallas, and not manager of that division as previously reported in Petroleum Week.

CHARLES O. PEYTON has been named manager of industrial and consumer sales for the Esso Standard division of Humble Oil & Refining Co., New York. He succeeds **Charles W. Bohmer, Jr.**, who has joined Humble's headquarters organization in Houston as assistant to **D. Woodson Ramsey, Jr.**, vice-president and director for marketing. Peyton, who joined Esso in 1942, was most recently head of Esso's specialties department. Petroleum specialties will now be consolidated with Esso's headquarters marketing department, and will continue to be directed by Peyton.

J. ED McHALE has been named manager of Mobil Oil Co.'s crude oil purchases and sales division, now a part of the company's newly formed crude oil and gas liquids department in Dallas. **C. Fred Carl** has moved up to supervisor of that division's field operations. Both men formerly worked with **D. R. Wall, Jr.**, who is manager of the new department. **E. L. Upham** continues as manager of the gas liquids division, and **W. R. Snyder, Jr.**, as assistant manager. **Edward J. Kodicek** has been appointed area gas representative, with offices in Chicago. Mobil's new department covers the area east of the Rocky Mountains, and has crude oil offices in five cities. Representatives in these cities are: **R. L. Denton** and **Fred M. Springer**, Midland, Tex.; **Paul B. Guenzel**, Corpus Christi; **J. R. Lennon**, Wichita Falls, Tex.; **E. G. Stricker**, Wichita, Kan.; and **H. L. Cliburn**, who will move from Kilgore, Tex., to Shreveport, La., next month.

J. E. McHale

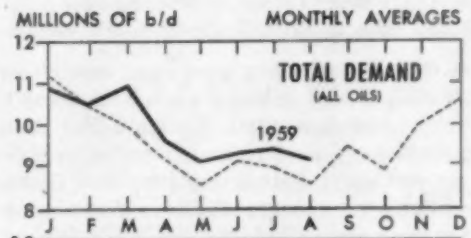
W. G. Shain

WILLIAM G. SHAIN has been appointed director of public relations for Atlantic Refining Co., Philadelphia, succeeding **Richard Rollins**, who is retiring. Shain, who joined Atlantic in 1946, was appointed industrial relations manager of the company's subsidiary in Brazil in 1952, and since 1954 has headed Atlantic's foreign personnel division. Atlantic is merging its public relations and industrial relations; the combined activities will be under **H. W. Jones**, who becomes vice-president and general manager of industrial and public relations.

LEWELL ADAIR is the new vice-president and manager of Libyan Atlantic Co., subsidiary of Atlantic Refining Co., with headquarters in Tripoli. Adair, who joined Atlantic in 1937, was most recently manager of operations for Venezuelan Atlantic Refining Co., in Caracas. In his new position, Adair will be responsible for all operations—including exploration, drilling, production, and governmental relations — connected with Libyan Atlantic's recent acquisition of a 6½-million-acre concession off the Libyan coast.

PETROLEUM WEEK'S

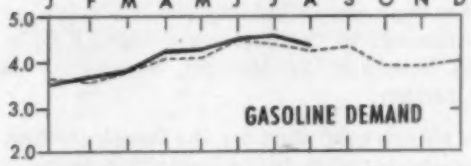
Fingertip Figures



Figures for period ended Sept. 23, except as noted

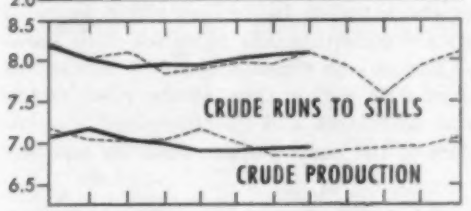
TOTAL DEMAND

Latest 4-week average	9.151
Year ago	9.044



GASOLINE DEMAND

Latest 4-week average	4.429
Year ago	4.360

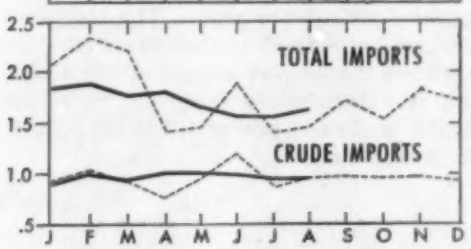


RUNS TO STILLS

Latest week	7.963
Previous week	8.083
Year ago	7.722

CRUDE PRODUCTION

Latest week	6.877
Previous week	6.847
Year ago	6.858

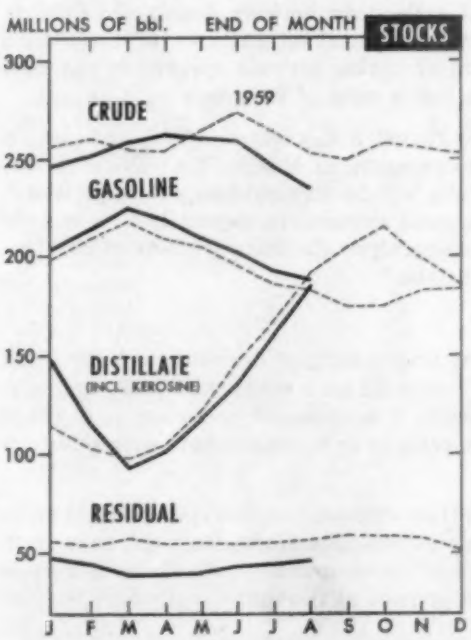


TOTAL IMPORTS

Latest week	1.559
Previous week	1.611
Year ago	1.653

CRUDE IMPORTS

Latest week	1.001
Previous week	1.229
Year ago	.989



CRUDE STOCKS

Week-ended Sept. 17	229.9
Previous week	227.8
Year ago	250.2

GASOLINE

Latest week	186.9
Previous week	189.3
Year ago	180.9

DISTILLATES

Latest week	200.3
Previous week	197.5
Year ago	204.6

RESIDUAL

Latest week	48.3
Previous week	47.6
Year ago	59.4

It looks as though refiners were serious about cutbacks in throughput. Runs last week fell below 8-million bbl. for the first time since the beginning of summer.

Crude processed averaged 7,963,000 b/d, down 120,000 b/d from a week earlier. It was the second consecutive weekly reduction.

But lest anyone be carried away too soon on a cloud of optimism, throughput is still 241,000 b/d higher than last year, when only 7,722,000 b/d were processed through refineries.

Amazing what a cut in runs can do to stocks, when coupled with even a small spurt in demand: Gasoline inventories dropped 2.4-million bbl. last week.

Motor fuel in primary storage now totals 186.9-million bbl., just 6-million more than last year. Stocks of gasoline had risen steadily since early this month.

Refinery production of gasoline was 790,000 bbl. below the previous week.

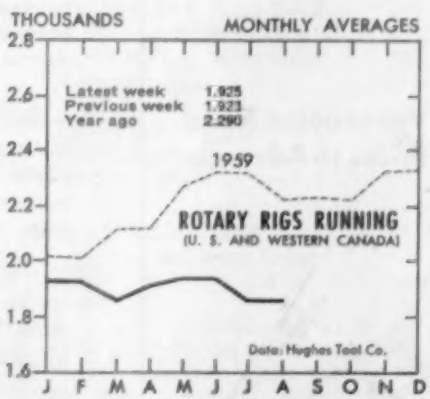
Demand for motor fuel increased 302,000 b/d the past week to 4,541,000 b/d—best showing since early September.

The buildup in distillates stocks was curbed somewhat, too.

Slightly more than 2.8-million bbl. of distillates were added to storage. The weekly buildup of stocks has been no lower than roughly 4-million bbl. throughout the past month.

With crude stocks at their current level, there's no danger that lower runs will add too much to storage—stocks can stand the padding.

Although stocks were up slightly last week—the first increase in months—they are still 23.5-million bbl. short of what the industry thinks will be ample on Nov. 1.



The Market Trend

September Markets End With a Fillip

September closed as not too bad a month for prices and product demand. You might say it was good. There was that extra little upward fillip to better market conditions with the hike in East Coast distillate prices.

Product demand for the past three months has been good enough to keep refiners out of pricing trouble despite high refinery runs. This doesn't say that demand has been any great shakes, because it hasn't. But it is significant that prices for home fuels have held firm in most wholesale markets the entire summer. There was some discounting here and there, but there was no bowing to big-volume purchasers. Refiners came away empty handed in the Midwest, for example, in bidding for No. 2 fuel at 0.5¢ discount. There have been summers in the past when heating oil in this volume moved to off-season buyers at 2¢ discount. Sometimes an anxious seller was beaten down further.

This means that markets are off to a good start for the fourth quarter. Even gasoline hasn't sagged after the so-called Labor Day hump (give or take a price war, or two). Refiners are collecting 0.5¢ more for their gasoline at the Gulf, 1¢ in Group 3. Chicago—as tough a gasoline market as there is at any time—has prices of 0.5¢ higher than at the close of the second quarter. This takes care of distillates and gasoline—and government import quotas have taken care of the resid market. Just try and buy a cargo of heavy fuel

It sums up to a good third quarter for refinery profits. The Independent Petroleum Assn. of America, which keeps track of the spread between crude and refined product prices, shows the August margin at 93¢ a bbl., highest since February last year. It's three weeks early for its report on the September differential between crude and products, but the outlook is that the margin will improve. It won't dip.

Trouble In 'Paradise'?

All went well in the first flush of enthusiasm between Russia and Cuba in supplying the suddenly expanded national oil industry of Cuba with crude oil. But now the fanfare of tanker arrivals apparently has died down. Actually, there may be just a mite of trouble.

Last week, a wry observation by Sergei Kudryavtsev, USSR ambassador to Cuba, was quoted in the newspaper, El Mundo: that shipping difficulties for Soviet crude to Cuba will be straightened out soon. It will iron out, he said, "because European shipowners, especially Greeks, cannot resist in the face of business paralysis the attractiveness of charters between the Soviet Union and Cuba."

Venezuelan Resid Prices to Advance:

The heavy fuel trade is discussing a narrowing of discounts in Venezuelan bunker "C" fuel. Product has tightened on a world-wide basis, and suppliers in the Caribbean are finding it is no longer necessary to discount by 30¢ to 40¢ a bbl. to be competitive in many markets with offerings from other areas.

Officially, Venezuelan thinking is that residual fuel, like crude, should move at the full posted price to spot buyers. The trade, however, says term sales likely will be in 15¢-20¢-a-bbl. discount range. Meanwhile, there is a European inquiry for low-sulfur resid at the Gulf Coast where product is quoted at $2.55 a bbl.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of September 26

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 12.25-13.25
- Gasoline, 92 oct reg 11.25-11.5
- Kerosine 9-10
- Heating oil, No. 2 ..... 8.25-9
- Gas oil, 48-52, d.i. 8.5-8.875
- Fuel oil, bunker "C" $2.30

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 14.75
- Gasoline, 93 oct research prem 11
- Gasoline, 87 oct research reg 10.125
- Gasoline, 80 oct research 9.375
- Gasoline, 70-72 oct motor method 9.25
- Kerosine 9.25
- Heating oil, No. 2 ..... 8.125
- Gas oil, 48-52 d.i. 8.375
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- **Kerosine ..... 10.2†-10.45†**
- **Heating oil, No. 2 ..... 9.2†-9.45†**
- Fuel oil, No. 6 ..... $2.62

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg 12.5-13.25
- Kerosine 10.5-10.625
- Heating oil, No. 2 ..... 9-9.25
- Fuel oil, No. 6 ..... $1.80-1.90

Chicago, bulk
- Gasoline, 92 oct reg 12.625
- Heating oil, No. 2 ..... 9.5-11.35
- Fuel oil, No. 6 high sulfur 7.65

Los Angeles, rack
- Gasoline, 88 oct reg 11.3-12.65
- Diesel fuel, PS 200 ..... 7.75-11.25
- **Light fuel, PS 300 ..... $2.80-2.90†**
- **Heavy fuel, PS 400 ..... $1.95-2.45†**

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 4.5-5
- Propane, Baton Rouge 5.625

Pennsylvania Lubes
- Bright stock, 25 p.t. 25
- 200 vis. neutral, 25 p.t. 28

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 26-27
- Neutral, solvent, 200-210 vis 23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 26
- Neutral, solvent, 200 vis 23

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130 ..... 15.5
- Gasoline, 79 oct research 9.125
- Kerosine 9.625
- Gas oil, 48 d.i. minimum 8.75

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9 ..... $2.62-2.97
- North Dakota, 36.0-36.9 ..... 2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N.M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N.M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 2.96-3.31
- Illinois Basin, flat 3.00-3.05
- Pennsylvania Grade, Bradford dist., flat 4.80
- **California, Signal Hill, 21.0-21.9 ..... 2.33††**
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.72-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.) 2.44
- Virden (Man.) 2.30

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz $3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, La Salina 1.85
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, La Salina 2.07

†Differential per deg. of grav. varies

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.80
- Safaniya, 27.0-27.9, Ras Tanura 1.47
- Iran, 34.0-34.9, Bandar Mashur 1.78
- Iran, 34.0-34.9, Abadan 1.73
- Iraq, 35.0-35.9, Fao 1.72
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.59
- Qatar, 41.0-41.9, Umm Said 1.95
- **N. Zone, Burghan, 23.5-24.4, Mina Saud ..... 1.48†**
- **N. Zone, Ratawi, 23.5-24.4, Mina Saud ..... 1.41†**
- **N. Zone, Eocene, 16.5-17.4, Mina Saud ..... 1.28†**

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon $2.17
- Iraq, 36.0-36.9, Tripoli, Banias 2.21

North Africa, Phillipeville, Algeria
- Hassi Messaoud, 48 and above ..... Withdrawn

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U.S. Gulf-New York, clean ..... (USMC—10%) $2.56
- U.S. Gulf-New York, dirty ..... (USMC—10%) $2.56
- **NWI-USNH, dirty ..... (USMC—50%) $1.38†**
- **NWI-UK/Cont., dirty ..... (Scale—67%) 10/10*↓**
- **Persian Gulf-UK/Cont., dirty (Scale—45%) 33/2*†**
- **Persian Gulf-USNH, dirty .. (USMC—60%) $5.08†**

**Sterling*

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1301 Rhodes-Haverty Bldg.
Jackson 3-6951

Boston 16 — David G. Sawyer
350 Park Square Bldg.
Hubbard 7-7160

Chicago 11 — Edward A. Callahan Jr.
520 N. Michigan Avenue
Mohawk 4-5800

Cleveland 15 — Marcus A. Loy, Jr.
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Dallas 1 — James R. Pierce
901 Vaughan Bldg.
2100 Commerce Street
Riverside 7-9721

Denver 2 — J. W. Patten
Tower Bldg., 1700 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — David G. Sawyer
500 Fifth Ave.
Oxford 5-5959

Philadelphia 6 — H. Sherman Davis
6 Penn Center Plaza
Locust 8-4330

Pittsburgh 22 — Marcus A. Loy, Jr.
4 Gateway Center
Express 1-1314

San Francisco 4 — William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 — J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E. C. 4 — E. E. Schirmer
McGraw-Hill Co., Ltd.
95 Farringdon St.

Germany, Frankfurt/Main — S. Kimes
85 Westendstrasse

Switzerland, Geneva — M. R. Zeynel
2 Place du Port

G. E. Doty

B. J. Hancock

GEORGE E. DOTY moves up to vice-president and general sales manager for Grove Valve & Regulator Co., with offices in Oakland, Calif., and **B. J. HANCOCK** succeeds him as vice-president, sales, responsible for all field sales from offices in Houston. Hancock was formerly eastern regional sales manager for Grove. **E. C. Bird** has been appointed district sales manager in Houston, and will handle sales of production valves in that region. He was formerly a division manager for Gulf Coast Machine & Supply Co., Houston.

PETER C. SUNDT has been named administrative assistant to the executive vice-president of Mandrel Industries, Inc., Houston. He will be chief administrator and technical director of Mandrel's two Houston divisions, Electro-Technical Labs and Electric Sorting Machine Co. He joined Mandrel as a design engineer with Electro-Technical Labs in 1953. He was most recently chief engineer and general manager of Electro-Tech France, with headquarters in Paris.

HARVEY E. DURHAM has joined Mission Mfg. Co. as head of its northern Rocky Mountain area office, at Casper, Wyo., and **HENRY LEE** now is head of the southern Rocky Mountain area office, at Denver. Both areas have been placed under the direction of Mission's western district, in Los Angeles, in a reorganization of sales facilities. Durham has been associated with several other supply companies, and Lee has transferred from Mission's West Texas-New Mexico district office in Odessa. Mission's Panhandle area has been incorporated in the Mid-Continent district to better coordinate sales and service activities in northwestern Texas. Mid-Continent district headquarters are in Tulsa, under the direction of **John Brown. Leon Couch,** formerly sales representative at Oklahoma City, transfers to Pampa, Tex. He succeeds **A. D. Prichard,** who transfers to New Orleans as special sales representative, valve division. **G. B. Wyatt** has moved from Houma, La. to Houston, to assume duties as special sales representative, valve division. **Anthony Volotko,** sales representative, has transferred from the Houston area to Odessa. **Joe Weaver** has been assigned to Midland, Tex., as special sales representative, valve division. He was formerly located in Andrews, Tex. Weaver and Volotko will work under **John Bannister,** manager of the Texas-New Mexico district.

DILLARD CANTRELL, formerly chief engineer for Trinity Steel Co., Dallas, moves up to assistant to the president. He will be involved in administrative duties, and will also head LPG sales. Before joining Trinity, Cantrell served on the engineering staff of Ebasco Services, Inc.

EDWARD L. OGDEN has been appointed director of employee relations for Babcock & Wilcox Co., New York. He will be responsible for the direction and coordination of all personnel, labor relations, personnel development, student training, and wage and salary administration functions for B&W and its

EIGHTEEN INTERNATIONAL GUESTS attended the September meeting of the Houston chapter of Nomads. They are (seated, l. to r.): **Roberto Sanchez,** Camco de Mexico; **J. Munoz,** Petroleos Mexicanos; **Luis Costa,** Shell Oil Co., Venezuela; **Peter Touma,** Iraq Petroleum Co., Kirkuk, Iraq; **Robert Busking,** Asiatic Petroleum Co., Houston; **Wendell Black** and **Guy Woodruff,** Tennessee Overseas, Argentina; and **L. Adamsen,** Gulf Oil Corp., Angola, Africa. Others are (standing, l. to r.): **Wes Bourdo,** K. L. Bourdo Co., Tripoli, Libya; **Manuel Bracho** and **German Viera,** Shell Oil Co., Venezuela; **B. Woodford,** Camco, Canada; **George Ratcliffe,** Asiatic, London; **Roy Dillon,** British American Oil Co., Calgary; **Paul Fleming,** Gulf Oil Corp.. Sicily; **Robert Ferguson,** Udell, Inc., Mexico; **C. Wen Shen,** Chinese Petroleum Co., Taiwan; and **Art Prell,** Mene Grande Oil Co., Venezuela.

subsidiaries. He will continue to be located at B&W's headquarters in New York as a member of the staff division. Ogden joined the company as manager of labor relations in 1959.

R. L. FREDERICK has been elected vice-president in charge of Timken Roller Bearing Co.'s international divisions, with offices at the company's headquarters in Canton, Ohio. Frederick, who joined the company in 1940, was most recently executive director, international divisions. At the same time, **R. A. Gulling** was named Timken controller in addition to his duties as assistant treasurer.

R. L. Frederick

R. F. Meiklejohn

ROBERT F. MEIKLEJOHN rejoins BJ Service, Inc., subsidiary of Borg-Warner Corp., as manager of the wire line division. For the past three years, he has been on special assignment with the Borg-Warner development team that introduced nuclear magnetism logging. In his new position, Meiklejohn will supervise all BJ's wire line services from offices in Long Beach, Calif.

MEL MADDOX has joined Allied Materials Corp., Oklahoma City, as manager of its newly formed pipeline coatings and materials division. Maddox comes to Allied with 14 years' experience in the pipeline industry and related fields. The new division, whose production center is the Allied plant at Stroud, Okla., will manufacture asphalt pipeline enamel and coal tar pipeline enamel.

PETER J. KORNETT, general manager of manufacturing for Oakite Products, Inc., New York, has been elected a director. Kornett, who joined Oakite in 1941, is responsible for the manufacture of 165 products for application in the petroleum, metal-working, food, and other industrial fields.

WILLIAM T. PHILLIPS has been appointed to the official staff of Chase Manhattan Bank as an assistant treasurer. He is in the petroleum department at the bank's head office in New York City. Before joining the bank in 1957, Phillips was associated with U.S. Rubber Co., Petro-Chem Development Co., and M. W. Kellogg Co.

WILLIAM F. HALEY is manager of the newly created southwest district office of Union Switch & Signal, division of Westinghouse Air Brake Co., with headquarters in Houston. The new office will facilitate the marketing of Union Switch & Signal pipeline systems. Haley, who joined the division in 1952, became a sales engineer in the general apparatus department in 1957, and was assigned to the pipeline engineering department. Since 1959 he has been area representative for systems marketing in the southwestern area. **William L. Hendricksen,** who recently became a sales engineer for the division, will assist Haley at the new Houston office.

R. W. REEKSTIN has been appointed manager, hydraulic sales, for the Axelson division of U.S. Industries, Inc., Los Angeles. He will be responsible for the hydraulic sales and service organization, including offices and warehouses in Long Beach, Calif., and Odessa, Tex. Reekstin, who has been with Axelson for 13 years, has served as technical sales engineer, chief engineer, and engineering manager of the petroleum technical service group. **Earl F. Mayer** has joined Axelson as controller. He was formerly controller for the Louisville Cement Co., Louisville, Ky. He has also been divisional controller for Clearing Machine Corp., in Hamilton, Ohio.

R. W. Reekstin

R. A. Geyer

DR. RICHARD A. GEYER is manager of gravity operations in the recently reorganized gravity department of Geophysical Service Inc., with offices in Houston. He has been with that department since 1954. The department is now responsible for the operation of all GSI gravity meter exploration crews in the United States, and will also be responsible for providing supervision and interpretation for all gravity operations overseas. Before the reorganization, GSI gravity teams were under the supervision of the manager of the area in which a crew was operating. Geyer will be assisted by supervisors **Morris McCord,** in Houston, and **Norman Harding,** in Denver. Personnel in the department are responsible to **N. W. Mann,** vice-president in charge of U.S. and Canadian operations.

GEORGE R. FOX has been elected vice-president of manufacturing for Joy International, S.A., subsidiary of Joy Mfg. Co., located in Monaco. He was formerly works manager of the parent company's plants in Franklin, Pa. In his new position, Fox will be associated with subsidiaries in Australia, France, Great Britain, and South Africa. **R. A. Lehner,** vice-president and assistant general manager of Joy's coal machinery division, will assume the responsibilities of works manager at the Franklin plants until a new manager is appointed. **C. A. Patten** has been appointed works manager at Joy's New Philadelphia (Ohio) plant. He has been manufacturing manager of the Franklin plants since 1958. **Jack K. Adams,** formerly Joy's chief industrial engineer replaces Patten.

H. E. Parsons

D. Walters

HAROLD E. PARSONS has been named vice-president in charge of the South America division, in Buenos Aires, Argentina, for The Western Co., and **DONALD WALTERS** succeeds him as Western's Rocky Mountain division manager, in Farmington, N. M. Walters was formerly assistant division manager for the Midland (Tex.) division. **B. J. Bucy** has been named technical assistant to the executive vice-president in Ft. Worth. He was division engineer in Oklahoma City. **Jean Barrett,** formerly division sales manager at Oklahoma City, will assume duties as city sales representative in Dallas. **Laddie Harp,** acting division sales manager at Midland, succeeds Barrett at Oklahoma City.

SEARCHLIGHT SECTION

(Classified Advertising)

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The Economic House Must Be in Order

OIL MEN HAVE BEEN WARNED amply during the past two weeks that the immediate future years hold promise of being the most competitive in the nation's history

At two particular forums, the annual meetings of the Texas Mid-Continent Oil & Gas Assn. and the American Assn. of Oilwell Drilling Contractors, the recurrent theme of several observers of the nation's economy was one of a sharply competitive business world.

To quote one of the forecasters, David H. Dawson, vice-president of E. I. du Pont de Nemours & Co.: "The sixties will be intensely competitive. We will see competition within industries, among industries, among great industrial nations. It will be complicated by vastly stepped-up competition, both political and economic, between the Free World and the Communist world. There will be little room for the slow of step or the faint of heart in the 1960s."

COMPETITION IS NOT A NEW TERM to oil men—competition within the oil industry, with other industries, and from abroad. But because competition has been intense in the energy field, perhaps many oil men have become calloused to such prognostications.

But the trend this year in the petroleum industry—reorganizations for greater efficiency, mergers and acquisitions, and the decisions of many companies to move into new marketing areas—sets the stage for the big play.

THE IMPACT OF MORE COMPETITION will be felt throughout the industry. Adjustments to the emerging pattern of operations most likely will have to be made during a period of lower financial returns—nearly always the result of sharper competition. Continued, perhaps even stepped-up, advances in technology will be a must, regardless of the cost-price squeeze.

The outgoing president of the drilling contractors, W. L. McClusky, boiled the meaning of the message down to two sentences:

"From now on, we must face facts. We will just have to put our economic house in order, or get out of business." He was speaking to his fellow contractors, but the advice applies to the entire industry.

CHECK OIC FIRST...IT PAYS!

DEPENDABILITY is the *first* consideration when you choose a valve, because the cost of valve failure in down time is almost always greater than the cost of the valve itself. That's why so many of the best distributors sell the OIC line. They know that when they recommend OIC valves, their customers can depend upon them...even in those tough problem installations. Equally important is the distributor's own dependability...his capacity to deliver the valves you need, when you need them. Here, OIC offers the support of a complete factory inventory of bronze, iron, ductile iron, cast and forged-steel valves. You get immediate delivery from your OIC distributor's representative stock, and 4 to 5-day delivery from warehouse or factory. For dependability of product and service, phone your OIC distributor. He has our all-out support in serving you.

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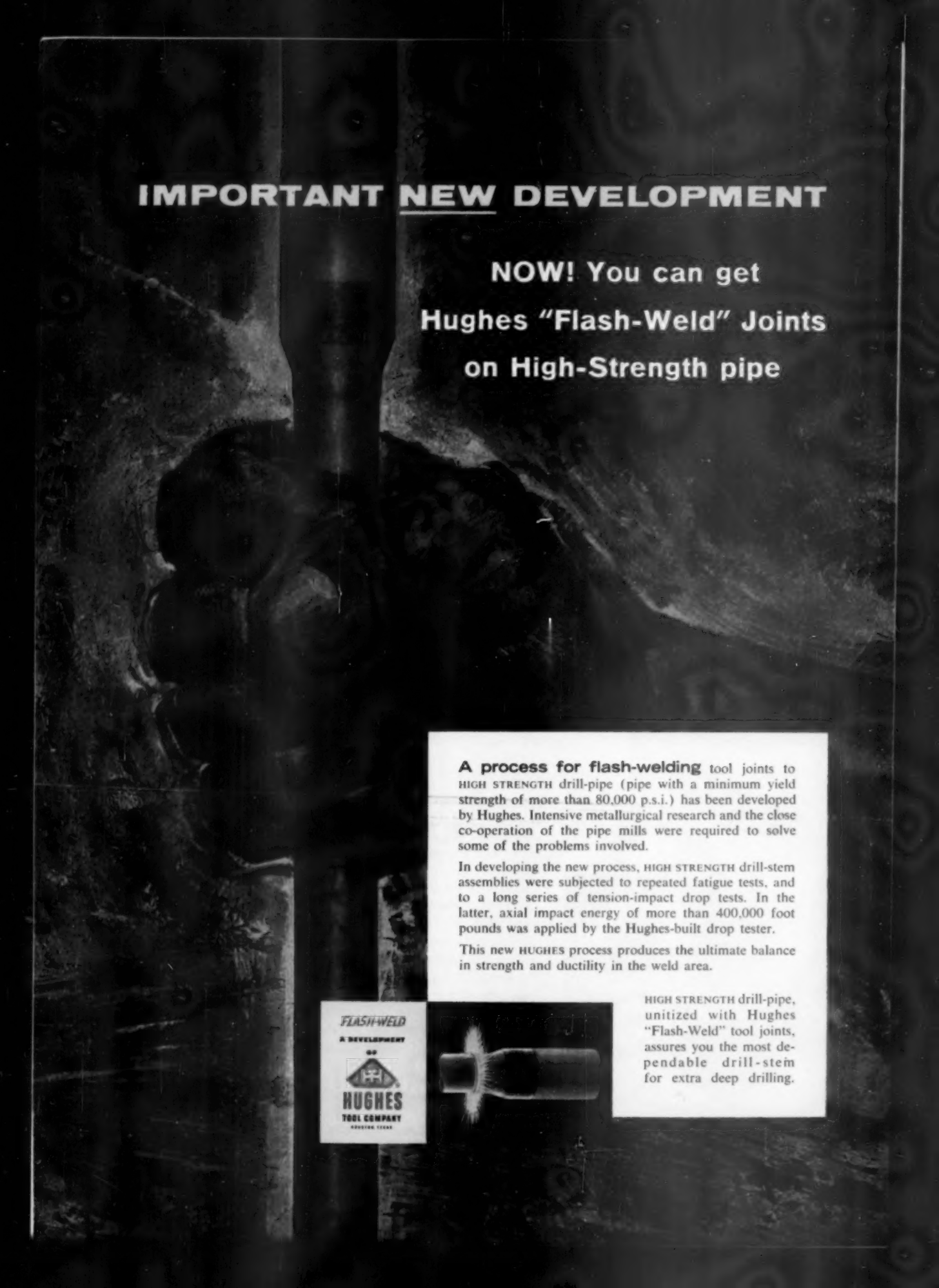
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NOW! You can get
Hughes "Flash-Weld" Joints
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A process for flash-welding tool joints to HIGH STRENGTH drill-pipe (pipe with a minimum yield strength of more than 80,000 p.s.i.) has been developed by Hughes. Intensive metallurgical research and the close co-operation of the pipe mills were required to solve some of the problems involved.
In developing the new process, HIGH STRENGTH drill-stem assemblies were subjected to repeated fatigue tests, and to a long series of tension-impact drop tests. In the latter, axial impact energy of more than 400,000 foot pounds was applied by the Hughes-built drop tester.
This new HUGHES process produces the ultimate balance in strength and ductility in the weld area.
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